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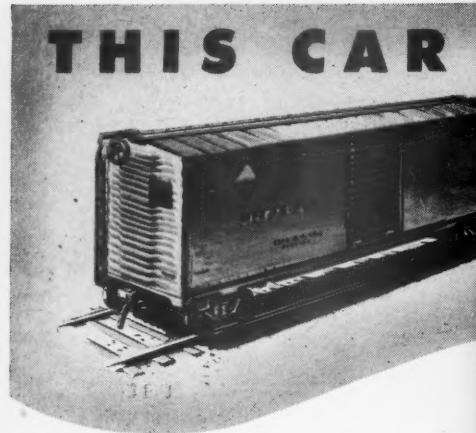
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RAILWAY AGE

The I. C. C. Signal Order

Railroad officers and employees are imbued with the importance of safety in the operation of trains. In evidence thereof, the railroads have long and steadily improved the safety records of their trains and are constantly installing equipment and facilities to further improve it. Recognizing automatic block signaling as a means of protecting train movements, they have installed such systems on approximately 101,519 mi. of track. Equally important in the interest of safety, they have expended many millions of dollars, and must continue to do so, for the improvement and maintenance of equipment, tracks and bridges.

The Interstate Commerce Commission is authorized to inspect the signaling facilities of the railroads, and to order them to install additional signaling where, in its opinion, such protection is needed. Under that authority, the commission on June 17 issued an order which, in brief, requires the railroads to install block signaling on all lines not now so equipped on which freight trains are operated at 50 m.p.h. or more, or passenger trains at 60 m.p.h. or more, and to install train stop, train control or cab signaling where any trains are operated at 80 m.p.h. or more.

Commission Used Its Own Judgment

Disregarding the position taken by the railroads at the hearings on this order held in Cincinnati, Ohio, last October, the requirements of the order are based on train speeds without respect to the number of trains. Further, the order blankets all roads, whereas the railroads contended that the commission could more reasonably issue orders to individual roads, and applying only to specified divisions or districts. These contentions were apparently disregarded by the commission in issuing a blanket order. It substituted its own judgment for that of railroad managements not only as to what expenditures are needed in the interest of safety as a whole, but also as to how total expenditures should be divided between the purposes of increasing safety, making other improvements in service and expanding capacity.

The section of the order concerning the installation of block signaling on lines where trains are operated above certain speeds applies to approximately 18,586 mi. of track, and the section requiring additional protection in

the form of train stops, train control or cab signaling applies on approximately 27,156 mi. The number of locomotives to be equipped is a variable factor. The requirement for block signaling on lines not now so equipped can evidently be met by the installation of either manual block or automatic block. The first cost of manual block would be much cheaper, but the operating expenses for maintaining open block offices would be so great that automatic block, in most instances, would be the most logical selection.

Can the Railroads Afford It?

At the hearing last October the railroads presented estimates of the costs of installing signaling systems. Automatic block signaling costs from \$4,200 to \$8,000 per mile of single track, and from \$3,000 to \$5,850 per mile of track in multiple-track territory. Even at a low average cost of \$4,000 per mile of track, the installation of automatic block on the 18,586 miles included in the order would cost \$74,344,000.

The railroads estimated with reference to protection in addition to automatic signaling that intermittent inductive train-stop would cost \$400 to \$700 a mile for wayside additions, plus \$2,000 to \$2,300 for the equipment to be installed in each locomotive. One estimate for automatic block signaling with continuous cab signaling was \$5,000 per mile of single track and \$4,000 per mile of track on multiple track, in addition to \$2,260 for the equipment of each locomotive. On the basis of a low average of \$3,000 per mile for train stop, train control or cab signaling, the installations on 27,156 mi. would cost \$81,468,000. If 2,000 locomotives were equipped at a low average of \$1,000 each, the cost would be \$2,000,000. Thus, conservatively, a total of \$83,468,000 could be involved for train stop, train control and cab signaling in the territories included in the order. Adding to this the \$74,344,000 for automatic signaling, makes \$157,812,000 as a low estimate of the total expenditure required by the order.

Can the railroads afford such a large expenditure for one single type of improvement in the interest of safety, in view of the huge expenditures they need to make to increase safety by other means and also to enlarge their capacity and effect innumerable other improvements? Net operating income is being earned currently at an

annual rate of only about \$950,000,000 annually, whereas the railroads should be deriving \$1,500 million annually from the record peacetime traffic they are now handling to provide them with funds for all the expenditures they need to make. The commission could much better justify its assumption that it is better qualified than the managements of the individual railroads to decide for what purposes they should make large expenditures if it did not persistently prove it is not a qualified judge of the total needs of the railways by following a policy of preventing them from making enough earnings to provide for their total needs.

Impact on the Railroads of Mr. Truman's Policies

President Truman's vetoes of the income tax and labor bills will have both political and economic repercussions. A business paper such as *Railway Age* is not concerned with the political purposes and probable political effects of the passage of these bills by a Republican Congress and their veto by a Democratic President. But everybody is concerned with the *economic* policies favored by those who passed the bills, and with the opposing economic policies favored by the President who vetoed them and the senators and representatives who voted to support his vetoes. Mr. Truman and those who voted to support his vetoes have arrayed themselves in favor of policies of excessive taxation and domination of the national economy by labor monopolies—policies certain to hinder needed expansion of construction and production.

The most important *economic* fact confronting the nation is that the capacity of its total plant devoted to the production and distribution of goods is unequal to present and prospective demands made upon it. Doubtless some now apparently inadequate parts of this plant will prove adequate when special extreme shortages due to the war are overcome. But that other important parts of the plant and the total plant are inadequate, because of lack of expansion during both the depression and the war, has been proved every day since the war.

Where Does Capital Come From?

The railway situation provides some of the strongest proof. The railways are handling one-half more freight traffic than before the depression. Despite this remarkable performance, they are falling far short of meeting the demands of traffic, especially freight traffic. They have placed since the war, and are still placing, large orders for all the kinds of equipment and materials they need. But they cannot get these orders filled. In some cases this is because the manufacturers with whom the orders are placed have not capacity enough to fill them. In other cases it is because manufacturers of railway equipment and supplies cannot get filled orders placed by them with other producers. In almost every direction in which you turn there are shortages of durable goods due to lack of capacity for their production.

Adequate expansion of the plant of industry and

transportation will require a huge investment. President Truman said in his message vetoing the reduction of taxes, "There is no shortage of funds" for "necessary investment and business expansion." Perhaps there is no such shortage right now. But there soon will be one, if we follow his policies of maintaining high taxes and leaving labor unions power to force up costs, regardless of the effects on the sources from which capital must be derived.

Mr. Truman used as a reason for vetoing the tax bill the reductions it would make in taxes on large incomes, citing as an example the reduction of \$5,000 it would make on an income of \$50,000. As new capital for expansion of the plant of industry and transportation must be largely derived from large incomes, let us analyze this argument. Until within recent years the recipient of an income of \$50,000 paid on it a tax of 20 per cent and had left \$40,000 a year that he could spend and invest. Now the tax is 50 per cent and he has left only \$25,000 a year that he can spend and invest. Furthermore, because of a decline of at least one-third in the purchasing power of money, \$25,000 will buy no more now than \$17,000 would buy before the war. Hence, allowing for the increase in taxes and the decline in the value of money, a man with an income of \$50,000 now has the equivalent of 57½ per cent less to spend and invest than before the war. Anybody who believes, in view of such facts, that continuance of present high taxation of large incomes will not restrict unduly the increase of capital and investment, is incapable of doing a sum in simple arithmetic.

Marketable Stocks Must Pay Dividends

The railways now have available large funds for investment. But they accumulated them by paying their stockholders much smaller dividends from the large earnings made during the war years than they paid from comparable earnings before the depression. And the funds the railways accumulated during the war, plus the net earnings they are making now, would soon prove insufficient for the large program of improvements and expansion they need to carry out.

Experience during the 20's plainly indicates that because of the diminished purchasing power of money, the railways need to be deriving from the present record peacetime traffic a net operating income of at least \$1,500 million a year. Thus far in 1947 they have earned at an annual rate of only about \$950 million a year. The only economical and sound way for them to finance the needed program of improvements and expansion would be partly from net earnings, partly with capital raised by selling stock. But if they invested a large part of their present meager net earnings, most of them would not have enough net earnings left to pay the dividends required to enable them to sell stock. For stock that does not yield substantial dividends cannot be sold as long as dividends included in large individual incomes are taxed by the federal government at such high rates as now.

The conclusion is inevitable that if railway net earnings continued as low and taxes on individual incomes as high as now, the railroad industry would soon find it impossible to continue financing a large improvement

program. Because of their inadequate capacity, the railroads are now a bottleneck that is restricting current construction and production and the expansion of plant required for increasing them. Hence, however much or however little new capital may become available for other industries, they will be unable adequately to expand their plant and production unless the railways can get enough capital for their expansion.

President Truman's claim that his veto of the tax bill will not tend to prevent industry from raising enough venture capital for expansion is very ill-founded, and shows ignorance of the economic needs, conditions and problems with which the nation is confronted. Fortunately, Congress passed the labor bill over his veto, thus reducing the power of labor unions to curtail profits by forcing up costs and prices, including prices the railways have to pay.

"Look Out For High Water"

Few, if any, elements of railway property are more stable and secure than sound track and bridges, but even these can present unexpected hazards to the safety of train operation if not kept under constant surveillance in times of storms and high water. There is no substitute for vigilance when the integrity of the roadway is threatened—and it is not enough to place all the responsibility on the track foreman, willing as he may be to accept it. At the same time, too much discretion can be allowed train and engine crews in deciding for themselves when track and bridge structures are safe, when they have been weakened or are threatened by the elements.

Such considerations are timely, as heavy rains, high water and floods are prevalent over wide areas of the country, and recent train accidents, attributed directly to these conditions, demonstrate the justification for concern. Three such accidents come readily to mind. In March a passenger train on a western road was derailed by a slide, resulting in the death of one and the injury of 30. More recently, on eastern roads, a passenger train ran into a washout, causing a number of injuries, and a freight train ran into a sidehill slide.

No one questions the primary responsibility of the track foreman for patrolling his territory in times of storm or high water—any hour of the day or night—to insure the safety of the track and bridge structures for the operation of trains. Such responsibility is so designated in most, if not all, operating rule books, and has been accepted by foremen, in most cases with a sense of pride, since the early days of railroading. To them, storms are a challenge, and the way they have met this challenge has been the subject of repeated tributes, written and unwritten.

The concern of maintenance officers for the safety of trains during storms and floods is not that their foremen will fail to do everything possible to warn of unsafe conditions, but rather, that train and engine crews—when the foreman or other qualified representative of the roadway and structures department is not readily at hand—will constitute themselves judges of the speeds at which they should operate over questionable track, and of whether threatened bridges are

safe. The assumption of such prerogatives on the part of train and engine crews is encouraged on many roads by long-established practice, under which the only admonition to crews in case of storms is to "look out for high water conditions."

The zeal of the operating department in keeping trains moving is praiseworthy and understandable. Nevertheless, "safety first" takes precedence over all other considerations; and it takes some familiarity with roadway and structures to pass judgment as to safety of operation under conditions of high water.

In considering this subject as a part of its study of the best methods of inspecting bridge substructures and underwater foundations, a committee of the American Railway Bridge & Building Association has been able to find only one road with what it considers to be an adequate rule governing restrictions upon the movement of trains under threat of storms and high water. This rule, contained in a set of special instructions governing the inspection of track and structures and the protection of trains during unfavorable weather conditions, reads as follows:

"Trains must not be operated under instructions to engineers to 'look out for high water conditions,' nor should train and enginemen be told to determine whether it is safe to use a bridge which may have sustained damage by reason of high water. These employees do not have equipment or tools to ascertain such conditions and generally their experience and training are such that they do not have the knowledge to evaluate accurately the information they might obtain."

This rule merits the attention of other roads that have less restrictive rules or practices. It deserves wider adoption, even if some trains are delayed as a result. The acceptance of anything less restrictive is to place too much responsibility for decisions on questions of safety upon employees not qualified to make such decisions, conscientious though they are in the interest of safe train operation.

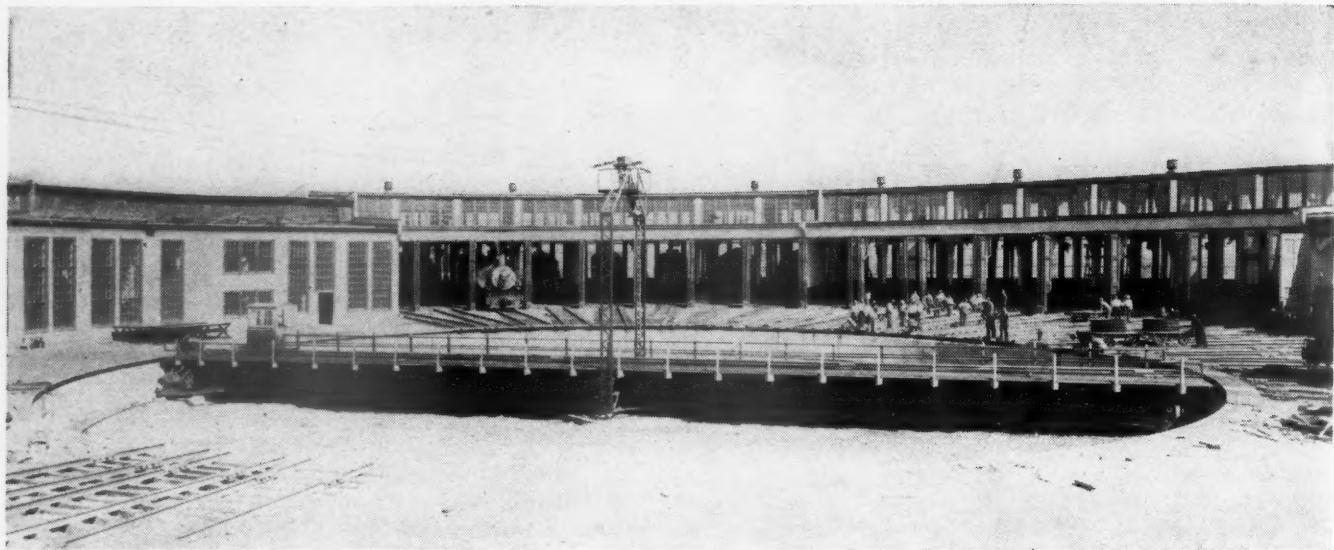
Advice from an Insider

Let's stop the bunk—that the entrance of the railroads and steamship companies into aviation would retard its growth. This is pure *hooey*. Honest competition has never injured any industry, and certainly if the air lines had had some real competition there would have been less circus stuff and a great deal more of constructive progress in terms of an expanded service to the public.

There has been too much "mutual admiration" in the Air Transport Association for the good of the air lines. Stop it now. Cut out the politics, and work like hell to retain the lead we now have—before it is too late.

In January, 1945, while realizing the gravity of this many-sided question, Aero Digest refused to take an editorial position for or against. Our country had a war to win. Everything else was of minor importance. Today we want to go on record by stating that our editorial objective is to aid in every way in helping the steamship lines and the railroads to secure such legislation as will make available to the nation the most modern, complete and efficient air-transport service within the bounds of current possibility.

—From an editorial in the May issue of Aero Digest.



Completed roundhouse and turntable at Helena, Mont.

Timber Roundhouse Defies Earthquakes

Special features incorporated in structure recently built on Northern Pacific are designed to resist earth tremors

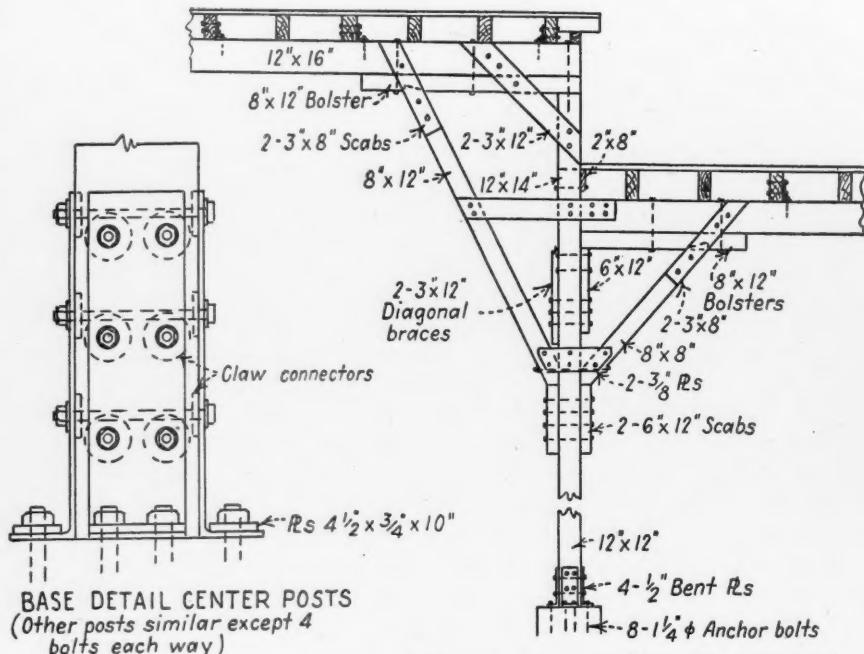
IN need of longer stalls in its engine- house at Helena, Mont., the Northern Pacific recently enlarged its house at that point by building sixteen 148-ft. stalls, and took the opportunity afforded by this work to incorporate features of earthquake resistance in the new construction to meet the threat of earthquakes, which on a number of occasions in recent years have damaged the existing roundhouse and other company buildings at this point. In the new construction, which is of untreated timber throughout, some of the earthquake resistant features include the use of special bracing, post anchorage, timber connectors, bolted connections, steel angles and gusset plates, and, in some instances, oversize timbers.

Helena is a subdivision point on the freight line of the Northern Pacific between Logan, Mont., and Garrison, the subdivision immediately west of this point crossing the Continental divide of the Rocky mountains. The region in and about Helena has been subject to numerous earthquakes with varying degrees of intensity. Records reveal six distinct shocks between October 12 and November 28, 1935, with that of October 18 of that year reaching an intensity bordering on that of the San Francisco earthquake of 1906.

The need for enlarged facilities at Helena was brought about by the handling of longer and heavier trains over

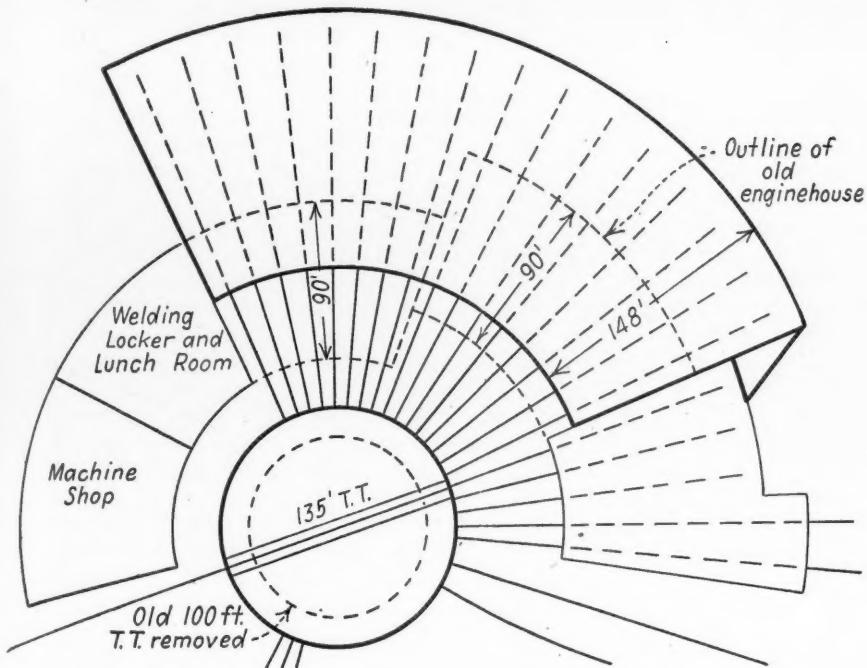
the Rockies, under which operation practically all westward trains require two helper engines out of Helena. It was also influenced by the assignment of a number of Class "Z" Mallet locomotives to helper service at Helena,

these locomotives becoming available with the acquisition of a number of 5,400-hp. Diesel-electric locomotives for use at other locations. In 1945 there were 52 locomotives being serviced regularly at the Helena roundhouse, 21



DETAILS OF LONGITUDINAL BRACE CONNECTIONS AT ONE OF THE MAIN POSTS

Details of the earthquake-resistant construction



General plan of enlarged enginehouse (heavy lines) showing the location of the 16 new 148-ft. stalls

of which were Mallets, each 126 ft. long and weighing 500 tons.

The existing roundhouse was of brick construction and contained two 145-ft. stalls, three 120-ft. stalls and twenty-three 90-ft. stalls—all served by a 100-ft. turntable. Thus, only two of the stalls—those 145 ft. long—were available for servicing 21 Mallet locomotives, and even to permit this the Mallets had to enter over leads at the rear of the stalls because neither of the long stalls was in line with the one lead track to the turntable, and the locomotives were too

long to be turned on the 100-ft. table. Furthermore, owing to the frequency and intensity of earthquakes, the existing building had been severely damaged and was in a poor state of repair. The need of the road under the conditions imposed was not for additional stalls as such, but for additional stalls of sufficient length to take care of the larger power being used. Accordingly, and especially in view of the condition of much of the old house, the center section, including 14 of the 90-ft. stalls, was removed and replaced by 16 new

148-ft. stalls, this being made possible by setting the inner circle wall of the new section further back from the turntable to provide the greater entrance area. In addition, the old 100-ft. turntable was replaced by a new 135-ft. three-point-support table.

Special Design Features

Plans for the new 148-ft. stalls called for earthquake resistant timber construction with fire walls at each end and in the center. Each stall is 15 ft. 4 in. wide at the entrance, 30 ft. 8 in. wide at the rear, and has a minimum overhead clearance of 18 ft. above top of rail.

Reinforced concrete was used throughout for the foundations, these consisting of 17 radial lines of 6 piers each, carried on spread footings, with connecting walls between the piers at each end of the new section to support the end walls, and between the piers along the rear for the support of the new outer circle wall. Beam-type construction was employed for the foundation supporting the new center fire wall dividing the new section into two separate units of eight stalls each. Piers are generally 3 ft. by 3 ft., supported on 5-ft. by 5-ft. footings, 2 ft. thick, with their bases at depths varying from 5 ft. 8 in. to 13 ft. 1 in. below top of rail. Variation in the footing depths was due to the fact that at the rear of the site excavation through filled ground was necessary to obtain suitable bearing.

The frame construction of the superstructure, with special attention to making it as earthquake resistant as possible, employs liberal use of heavy timber in which all wood-to-wood con-



Interior of the house, showing details of the earthquake-resistant timber construction

tacts are fitted with split-ring connectors. In addition, all metal-to-wood contacts are made through claw-plate connectors, and connection bolts have plate washers under both heads and nuts where contact is made with wood.

A typical longitudinal bent in the new section is constructed with 12-in. by 12-in. posts at each pier and, with the view to earthquake resistance, has special post anchorage, special brace connections, and strengthened purlin ties. The posts are connected to the foundation piers by large $\frac{1}{2}$ -in. plates, bent to form angles. Four of these angles are bolted to each post by four to six bolts, depending upon the post locations, with the bottom leg of each angle bolted to the pier by means of two anchor bolts. These latter bolts have a common washer plate $4\frac{1}{2}$ in. by 10 in. by $\frac{3}{4}$ in.

The special features of the post brace connections include through bolting of the braces; individual, bolted scab supports; and gusset plates of $\frac{3}{8}$ -in. steel. Framing the tops of the braces to a bolster which is through-bolted to the girder timber, with the entire connection reinforced by scabs on each side of the brace, are the important girder brace connections. Adding to the strength of the structure are special purlin ties of 9 in. by 4-in. by $\frac{1}{2}$ -in. steel angles, through-bolted to the purlin and lag-bolted to the girders at specified intervals.

Roof Construction

In the roof construction, the purlins are spaced on centers of 2 ft. 6 in. to 4 ft., depending upon their location and the length of span. Roof decking is of 2-in. D&M sheeting, applied diagonally for added strength. This is covered, in order, by two-ply tarred felt, a layer of 1-in. insulation, and a top surface of standard four-ply pitch and gravel-type roofing.

The outer circle wall of the new structure is constructed of 2-in. by 8-in. studding on 24-in. centers, with 1-in. by 6-in. D&M sheathing on the exterior, covered with white-top asbestos siding. Transite sheets, $\frac{1}{16}$ in. thick, are used for interior wall facing to a height of 6 ft. above the floor level, with $\frac{1}{2}$ in. thick insulation sheets above that point. Sheet Transite is also used to cover all exterior faces between lantern windows and over the entrance doors.

The fire walls at the ends of the new structure, as well as that dividing it through the center, consist of 2-in. by 8-in. studding on 24-in. centers, covered with $\frac{3}{8}$ -in. Transite sheets, these sheets being carried to a height of 2 ft. above the roof surface and 2 ft. out from the lantern wall faces. All posts and bracing included in these walls are covered with the Transite sheets.

In order that the new section would not be affected by any further disintegration or actual shaking down of the remaining sections of the old structure due to earthquakes, additional supports were added to the old sections outside the limits of the new construction. All of the heavy timbers used in the new structure were prefabricated, bored and fitted in the shops of Timber Structures, Inc., Portland, Ore., from detailed shop drawings, and were shipped to the site for erection. All stalls in the enlarged house are equipped with engine pits of standard pit construction, and including three two-track, hydraulic-ram drop-pits, and smoke jacks constructed of Transite.

Ventilation of the house is by means of eight 18-in. ventilators on the roof at the high side of the lantern, with

butterfly dampers arranged for operation from the floor level. Unit-type heaters of cast iron construction, each with a capacity of 125 lb. per sq. in., supply the heat.

In addition to the work in the house proper, the new 135-ft. turntable was installed.

The plans and specifications for the work described were prepared by the engineering department of the Northern Pacific under the direction of Bernard Blum, chief engineer, with Walter H. Wheeler, structural engineer, of Minneapolis, Minn., as consultant. Mr. Wheeler designed and prepared structural plans of the foundations and superstructure of the roundhouse. The field work was performed by the Al Johnson Construction Company, Minneapolis, in the capacity of general contractor.

Clark's Yardlift-40

"Yardlift-40" is the name of a newly-developed pneumatic-tired fork-lift truck introduced by Clark Tractor, Battle Creek, Mich. Designed for outdoor work and on surfaces too uneven for solid-tired machines, the new truck has a capacity of 4,000 lb. at 24 in.; has a lift of 120 in. with $85\frac{1}{2}$ in. overall height; and, in most cases, can be equipped with standard Clark carloader forks and attachments.

A pivoted steering-axle mounting and three-point suspension of the truck are said to make for smooth operation over rough surfaces. A new-type drive-axle

permits a 42-in. overall width and a high degree of maneuverability. A heavy-duty transmission provides a speed of 9.4 m.p.h. in high gear and 2.9 m.p.h. in low, both forward and reverse. It is claimed that a mechanical governor assures better carburetion and elimination of frequent adjustments. A new type of seat with backrest provides increased comfort for the driver.

It is further said that accessibility for effective servicing has been increased, with the engine compartment arranged for easy access through a divided hood that can be removed readily. A universal joint between the transmission and drive-axle permits easy clutch removal.



Pivoted steering-axle mounting and three-point suspension of the truck are said to provide smooth operation for the Yardlift-40

Wages Per Revenue Dollar Up; Traffic Units Per Wage Dollar Down

Comparisons with 1941 presented in I. C. C. bureau's "Monthly Comment," which also reports on the use of Diesels and analyzes preferred stock issues, operating ratios and taxes

PAYROLLS of Class I line-haul railroads took 50.4 cents of the revenue dollar in the first three months of this year as compared with 43.8 cents in 1941's first quarter, while the average number of revenue traffic units per dollar of wages dropped from 226 to 175, or 22.6 per cent, according to an analysis presented by the Interstate Commerce Commission's Bureau of Transport Economics and Statistics in the latest issue of its "Monthly Comment." The analysis also showed that the average traffic units (revenue ton-miles plus twice passenger-miles) per hour paid for were up 19.1 per cent—from 173 in the first three months of 1941 to 206 in this year's first quarter.

The total compensation paid during the first three months of this year was \$1,026,933,000 or 50.4 per cent of the operating revenues. The comparable figures for 1941 are \$505,095,000 and 43.8 per cent, respectively. The bureau segregated the figures on transportation-service employees from the total, and showed that those employees received in this year's first quarter \$420,816,000, or 20.6 per cent of the operating revenues. In the first three months of 1941, the transportation-service employees were paid \$214,563,000, the equivalent of 18.6 per cent of the operating revenues.

By Districts and Regions

The breakdown by districts and regions showed that in the Eastern district, Pocahontas region, and Southern region, the percentages of employee compensation to revenues were 9.9, 8.5, and 7.1 points higher, respectively, than in 1941. For the Western district, however, the increase was only 1.8 percentage points. The range of the 1947 percentages which produced the 50.4 per cent average was from 40.9 in the Pocahontas region to 53.5 in the Eastern district.

The country-wide average decline of 22.6 per cent in the number of revenue traffic units per dollar of compensation was the net result of declines ranging from 12.3 per cent in the Western district to 28.6 per cent in the Eastern district. The traffic units per dollar of compensation in this year's first quarter ranged from 155 in the Eastern district

to 324 in the Pocahontas region, while the comparable 1941 figures ranged from 204 in the Western district to 451 in the Pocahontas region. This tabulation showed further that carriers in the Eastern district handled 42.8 per cent of the total traffic units in the first quarter of 1941 and 37.8 per cent in 1947. Meanwhile the Western-district carriers increased their proportion from 33.5 per cent to 39.3 per cent.

On the basis of traffic units per hour paid for, all territories showed improvement, the 19.1 per cent country-wide increase in this year's first quarter as compared with 1941 being the result of increases ranging from 8.7 per cent in the Eastern district to 35.9 per cent in the Western district. Here the units-per-hour figures in 1947 ranged from 187 in the Eastern district to 381 in the Pocahontas region, as compared with a 1941 range from 153 in the Western district to 346 in the Pocahontas region.

Data presented on freight traffic density on Class I roads, as measured in net ton-miles per mile of road per day, showed an increase of 7.2 per cent in this year's first quarter as compared with the like 1946 period, and of 55.2 per cent above 1941. The latter is the net result of increases ranging from 35.3 per cent in the Eastern district to 78.8 per cent in the Western district.

The bureau's usual analysis of latest revenue results showed that the April freight revenue on a daily basis was 4.6 per cent below that of March but 37.2 per cent above April, 1946. Passenger revenues were up 1.9 per cent from the previous month, but 33.6 per cent below April, 1946. The April freight revenue index (based on the 1935-1939 monthly average as 100) was 217.4, compared with March's 227.9 and April, 1946's 158.5. The passenger-revenue index was 207.7, compared with March's 203.9 and April, 1946's 313.

The net railway operating income for the 12 months ended with April was put at \$730,307,000 and the net income at \$409,253,000. These compare, respectively, with \$625,824,000 and \$240,487,000 for the 12 months ended with April, 1946, and with \$1,097,540,000 and \$671,181,000 for the 12 months ended with April, 1945. These are the after-deduction-of-federal-income-tax figures given

in the "Comment" which later on presented a table of federal income tax accruals by kind of tax, for the calendar year 1946.

That tabulation showed that Class I line-haul roads as a whole reported for last year a net federal tax credit of \$15.7 million. This was the result of excess profits tax credits totaling \$213.9 million which more than offset normal income and surtax accruals of \$123.8 million and \$74.5 million, respectively. Also, it was a composite of a net credit of \$54.1 million in the Eastern district and net debits of \$36.2 million in the Southern district and \$2.2 million in the Western district.

Also analyzed are figures on the 1946 freight and passenger service operating ratios and net railway operating income. For freight service the operating ratio last year was 78.67 as compared with 79.98 in 1945; for passenger and allied services it was 100.35 as compared with 76.83. Comparative figures of the 1939-1946 period showed that the most favorable ratio for freight service was 58.07 in 1942 and for passenger service 64.77 in 1943. The net railway operating income figures showed a range for freight service from 1945's \$620.6 million to 1942's \$1,394 million, and for passenger service from 1943's \$279.8 million to 1940's net deficit of \$262.1 million. Last year's passenger-service deficit was \$137.9 million. "These figures," the bureau said, "were materially affected by the apportionment as between freight and passenger service of large federal income tax credits included in the carriers' 1946 accounts."

Diesels Still Gain

Bringing up to date its reports on the increasing use of Diesel-electric locomotives, the bureau set out figures comparing the situation in this year's first quarter with that of 1941's first three months. Diesel-electric locomotives handled 10.89 per cent of the road freight service gross ton-miles in the 1947 period as compared with 0.08 per cent in 1941, while the proportion handled by coal-burning steam locomotives fell from 80.46 to 68.84. Oil-burning steam locomotives, meanwhile, improved their relation

(Continued on page 1304)

Simple Signaling a Boon to Safety for High-Speed, Medium Traffic

Arrangement without intermediates gives complete protection at low cost and is adaptable to lines handling comparatively few trains at high speeds

A NOVEL single-track automatic block signal system, designed especially to provide protection on a high-speed, medium-traffic line at minimum cost, was completed late in 1946 by the Rock Island Lines on 490 mi. of single track between Omaha, Neb., and Limon, Colo., on the route between Chicago and Denver or Colorado Springs. Although the volume of traffic on this section of line is not heavy, the through trains are operated on fast schedules. Previously no signaling was in service on this territory and train movements were authorized by timetable and train orders. The primary need, therefore, was for an automatic block system including track circuits for protection against collisions as well as to check for broken rails and the position of switches, without intermediate signals as ordinarily included in automatic signaling.

Because of the extended mileage, character of the line and volume of traffic,

maximum protection at minimum cost was the result sought in the installation. In this instance, necessity was the mother of invention. The Rock Island signal engineer, in cooperation with various operating officers, adopted a simplified arrangement of station-to-station blocks, without intermediate signals, which materially reduced the number of signals required. Furthermore, the signal engineer and his staff developed a novel application of coded track circuits which in the station-to-station blocks, confines the controls to the rails, thus eliminating the use of line wires between sidings, thereby further reducing the construction and maintenance costs. The cost of the signaling on 485.7 mi. was \$836,135, an average of \$1,706 a mile; \$1,626 of this average was charged to additions and betterments, and \$80 to operating expenses. The \$1,706 can be compared with approximately \$3,000 a mile for conventional single-track auto-

matic block signaling installed previously on the Rock Island to handle more intensive traffic. With fewer signals, the maintenance sections can be longer, the 485 mi. being divided into 13 signal maintainers' sections, which average about 37 mi. each.

Eight to Twelve Trains

A high-speed, lightweight passenger train, the "Rocky Mountain Rocket," is operated in each direction daily, as is a second through passenger train with standard equipment, which makes numerous stops. Also, a local passenger train is operated each way between Belleville, Kan., and Goodland, Colo., 234 mi. Two fast through freight trains are scheduled each way, and extra sections are operated as required. Local freights or mixed trains are operated on certain subdivisions. Thus on some sections, as for example between Fairbury,



Train accepting aspect of station-departure signal, which governs all the way to the next station

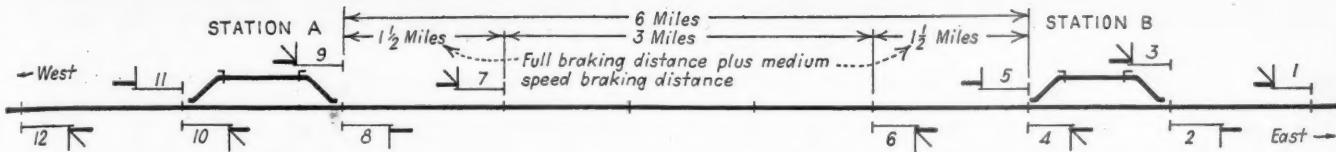


Fig. 1—Typical arrangement of signals in station-to-station automatic block system

Neb., and Goodland, Colo., the schedules include six passenger trains and four to six freight trains, totaling 10 to 12 trains daily. On other subdivisions the total may be 8 to 10 trains daily.

Between Omaha and Limon the Rock Island traverses rolling prairie with light curvature and easy grades, except for a few short sections of 1 per cent in the breaks near rivers. The track, which includes 100-lb. or 110-lb. rail, is maintained in good condition for high train speeds.

Simplified Signal Arrangement

The simplified arrangement of signals is illustrated in Fig. 1. One automatic block extends from station-to-station, as for example from signal 5 at the west end of Station B to signal 9 at the east end of Station A. Station-leaving signals, such as signal 5, display only two

signal 9. The distance between two such signals is about 1.5 mi., which is adequate in which to stop a train from maximum speed. A distant signal, such as signal 7, displays three aspects: red indicates Stop-and-Proceed; yellow is the Approach aspect indicating that signal 9 is displaying red; green indicates that signal 9 is displaying either yellow or green and that the track between signals 9 and 11 is unoccupied. Signals such as 7 are purely distant signals; they are not located or controlled to serve as intermediate signals.

As a general rule when making a meet between opposing trains, the train which is to take siding arrives first, and is in the clear before the opposing train approaches. For example, while a westbound train is entering the east end of the siding at Station B, the eastward signal 4 at the other end is held at the red aspect, but the eastward signal 8 at

stopped short of the station-entering signal waiting for a meet, the rules which apply are to the effect that, when the inferior train is known to be entering the siding, the engineman may release his train brakes, pump up the air line, take up slack and start his train proceeding at 10 m.p.h. As a general rule, by the time he gets his train moving, the westbound train clears the main track, and the brakeman places the switch normal; then Signal 8 clears. Accordingly, the engineman of the eastbound train accelerates at once, so that, by the time he passes the east switch, he is rolling at a fair speed. On the other hand, with conventional signaling and with the eastbound train waiting at location Y, the engineman would have to start from a dead stop, and he could not do so or prepare to do so until the other train was in on the siding, the switch was closed and the signal cleared.

Enginemen and operating officers on the Rock Island state that the practice of stopping the eastbound train west of signal 10 actually saves train time. Another advantage is that this practice is safer, because in the conventional practice when advancing an eastbound train to an indefinite location, such as position Y, not designated by a signal, that train may go too far. Even when stopped just short of the fouling point of the switch, it may be struck by the westbound train if the engineman misjudges conditions and overruns the switch. Thus, what might appear to be a disadvantage in the Rock Island station-to-station system has actually, in the opinion of Rock Island officers, proved to be advantageous from the standpoint of train operations as well as safety.

For Following Moves

The through freight trains are fairly well distributed throughout the 24-hr. period, and therefore, there is no occasion for trains of the same direction to follow each other at spacings less than those between stations. For this reason, the station-to-station automatic block arrangement is no handicap in reducing the spacing between following trains.

Referring to Fig. 1, in an instance in which a westbound freight train is waiting for a westbound passenger train to pass, the rear of the passenger must pass beyond signal 9 at Station A before signal 5 at Station B will clear to direct the freight to depart from the siding.

aspects, red for Stop, or green for Proceed, which govern all the way to signal 9. Signal 5 is not capable of displaying the yellow aspect because it is not located or controlled to display an Approach aspect for any signal ahead. Absolute stop, Rule 292, applies to the red aspect.

In addition to the block between any two stations, there is also an automatic block on the main track within the limits of each station, as for example between signals 9 and 11 at Station A. The station-entering signals, such as signal 9, display three aspects. The green aspect indicates that the block between this signal and signal 11 is unoccupied and that signal 11 also is displaying the green aspect. The yellow on signal 9 is an Approach aspect indicating that signal 11 is displaying the red aspect. A red on signal 9 is a permissive, Stop-and-Proceed aspect, Rule 291.

In approach to each station-entering signal there is a distant signal, signal 7 being the distant signal in approach to

Station A displays green to direct the eastbound train to proceed to Station B.

On the other hand, if the superior train which is to hold the main track arrives first, that train is required, in this system of signaling, to stop short of the station-entering signal—for example, an eastbound train would stop west of signal 10 at Station A. If the train should pull past signal 10, the westward station-leaving signal 5 at Station B would be controlled to the Stop aspect and this would hold the westbound train at Station B if it had not already passed signal 5.

The fact that a superior eastbound train arriving first for a meet must stop short of the station-entering signal, such as signal 10 at Station A, in Fig. 2, has not, however, proved to be any disadvantage on the Rock Island, as compared with allowing such a train to pass a station-entering signal and enter station limits on the main track before stopping, as for example in a location Y shown as dotted in Fig. 2.

When an eastbound superior train is

However, when signal 5 does clear, it changes directly from red to green, thus prescribing maximum speed for the following train. The average length of the station-to-station blocks is 6 mi., so that a passenger train at 70 m.p.h. would traverse such a block in 5.19 min., or a "Rocket" train at 90 m.p.h. in 3.96 min. In view of the limited number of passenger trains each way daily, the delay to freight trains on this score on account of station-to-station blocks is of little consequence.

Toward the west end of the project some of the station-to-station blocks are longer, ranging up to 10 mi. In such instances the overall station-to-station block is cut into two blocks with a pair of signals, with distant signals for each direction at a mid-point in the overall block. This arrangement provides for station-to-station protection for opposing trains and allows following trains to move in when half the block is clear.

Results Accomplished

The objective for which this installation was made has been accomplished, in that safety of train operations has been vastly improved by the automatic block signaling. The train movements are authorized by timetable and train orders just about the same as previously, but a great difference is that the enginemen, when they get a green signal, have confidence to accelerate their trains quickly, and run at maximum speeds, whereas before, if there was any uncertainty as to the location of some other train ahead, they would operate at reduced speed. Furthermore, the green signal aspects assure the enginemen that there are no broken rails ahead, and that the switches are in the normal position. The protection afforded by the signals was the deciding factor in raising the maximum authorized speed of freight trains from 40 m.p.h. to 45 m.p.h.

Prior to the installation of the signaling, all other trains were required to clear the main track at least 15 min. prior to the scheduled time of the "Rocket" trains.

Now this has been reduced to 10 min.; the extra five minutes being, in numerous instances, enough to permit a train to advance one more siding.

Previously, unless a train crew had plenty of time to go to one more siding for a meet, they would take siding where they were. With the signal protection, the train crews know that they can, with safety, keep going to make meets on closer time. As a result, a train may save 10 to 15 min., and this may occur more than once on a run. Thus, in addition to accomplishing the primary purpose of improving safety, the signaling has engendered goodwill and cooperation on the part of engine and train crews, with the result that overall aver-

age train speeds have been increased and on-time performance has improved. Therefore, the Rock Island has been so well satisfied with the results of this signaling that an installation of the same type of system has been authorized and is under construction on 201 mi. between El Reno, Okla., and Fort Worth, Tex. This signaling installation was planned by the operating and signaling officers of the Rock Island and was installed by railroad forces. The details of special circuits and construction practices developed for this project were explained in an article in the April, 1946, issue of *Railway Signaling*.

Wages Per Revenue Dollar Up

(Continued from page 1301)

tive position slightly, handling 18.11 per cent of the 1947 load as compared with 16.96 per cent in 1941.

Diesel-electric locomotives in passenger service propelled 22.15 per cent of the passenger-train car-miles in the first quarter of this year as compared with 7.11 per cent in the like 1941 period. Over the same period the proportion handled by coal-burning steam locomotives dropped from 65.03 per cent to 47.23 per cent, while the oil-burning steam locomotive's proportion rose from 21.27 per cent to 23.91 per cent.

In the yards, Diesel-electrics accounted for 29.47 per cent of the freight-service locomotive hours reported for this year's first quarter as compared with 10.42 per cent in 1941. The proportion accounted for by coal-burning steam locomotives dropped from 78.41 per cent to 61.07 per cent. Likewise, in yard passenger service of this year's first quarter the Diesel-electric locomotive hours were 41.78 per cent of the total, nearly equal to the 41.96 per cent shown for coal-burning steam locomotives. In the first quarter of 1941, steam locomotives accounted for 59.88 per cent of the total locomotive-hours in yard passenger service, while the Diesel-electrics accounted for 18.93 per cent. The oil-burning steam locomotive, which did a little better than hold its own in road service, as noted above, lost ground in yard service. In the first three months of 1941, it accounted for 10.33 per cent and 10.3 per cent of the locomotive-hours in yard freight and passenger service, respectively, but its proportions were down to 8.77 per cent and 7.28 per cent, respectively, for this year's first quarter.

Another article presented results of a bureau analysis of preferred stock issues of Class I roads. These figures showed that, at the close of 1945, 58 of the 130 Class I roads had outstanding 79 issues of preferred stock, with a total

par value, in the case of par-value stock, and book value, in the case of no-par stock, of \$1,831,500,967. This was equivalent to 23 per cent of the total outstanding capital stock of the roads involved, not including lessors. The specified dividend rates ranged from 3 to 10 per cent, the predominant rate being 5 per cent, which was carried by about one-third of the issues, representing 38.3 of the value of the total outstanding. Dividend rates of 6 per cent or lower were carried by issues representing 87.7 per cent of the total value.

It was also found that 32 of the 79 issues were fully cumulative, 38 were non-cumulative, and 9 were of "mixed types," i.e., combinations of cumulative and non-cumulative, including 5 issues of the so-called "earned cumulative" variety where the specified initial dividend rate is cumulative to the extent earned but non-cumulative as to any balance not earned. The bureau observed that although this "earned cumulative" preferred is not of recent origin, it has been little used. It added that "despite the fact that a number of reorganization plans have provided for earned cumulative issues or miscellaneous combinations, nearly 60 per cent of the reported issues at the end of 1945 were still of the pure non-cumulative type which historically has been the predominant form of rail preferred issues." The 38 non-cumulative issues represented 55.9 per cent of the total par or book value outstanding while the 32 fully-cumulative issues represented 31.2 per cent.

The bureau calculated that service of the 79 issues at the initial dividend rates specified would require \$100,246,477 a year. Also, it found that, as of the close of 1945, 22 of the 32 fully-cumulative issues had dividend accumulations totaling \$380,647,850. Less than 20 per cent of the number or value of the 79 issues was reported to be either participating or convertible; and more than 40 per cent of both the number and value was non-callable.



Train and running repair shops of the Berlin (Germany) Transportation Company at the end of a line serving the American Military Government "Community"

Finds Lack of Evidence Sewage Disposal from Cars Menaces Health

AN examination of the available evidence leads to the conclusion that there is "good reason for modifying" the hypothesis that track pollution from the disposal of human wastes from railroad cars constitutes a "menace" to public health, according to Dr. Kenneth F. Maxcy, of the School of Hygiene and Public Health of the Johns Hopkins University, Baltimore, Md. His report on an inquiry into this alleged hazard has been released by the Joint Committee on Railway Sanitation of the Association of American Railroads.

The idea that track pollution might be responsible for the spread of micro-organisms causing various so-called enteric infections and diseases, especially typhoid fever, received wide acceptance following a presentation of the hypothesis in 1903 by Dr. Paul B. Barringer, the report notes, and such acceptance has led to experiments to develop better procedures for the disposal of human wastes, while the manner in which wastes are disposed of at terminals and yards and from cars at stations and en route are prescribed in the 1942 Sanitation Manual for Land and Air Conveyances promulgated by the Federal Security Agency.

The study on which Dr. Maxcy has reported was undertaken to determine in what manner and to what extent past practices in waste disposal from cars have constituted a public health menace, and to produce a basis to check the validity of the original hypothesis in the light of experience since it was first presented. The following observations are included in Dr. Maxcy's report.

If the disposal of sewage along railways has been a public health menace, this fact should be indicated by the unusual incidence of typhoid fever from about 1900 up to about 1920 [the year in which the Standard Sanitary Railway Code was adopted] among persons particularly exposed to this source of infection by reason of (1) location of residence in proximity to tracks, (2) being employed by a railroad, or (3) being consumers of a water supply that might be polluted by railways at some point in collection or distribution. The history of typhoid epidemics in relation to railway sanitation was exhaustively reviewed in the study, and it failed to reveal any definite indication that the incidence of typhoid fever among persons living near railroads was greater than among persons living under conditions otherwise similar but in other parts of the same community.

Even if some means for conveying the pathogenic organisms from a polluted roadbed to adjacent homes were lacking, and the diseases therefore were not spread, railway employees, especially "section hands" working on the tracks, could hardly escape exposure, the report pointed out. In other words, it would be expected that these laborers would have a special occupational hazard from these enteric infections. The inquiry, however, failed to produce acceptable scientific evidence of an unusual incidence of typhoid fever among railroad employees, as compared to other groups living in the same communities under conditions otherwise similar, Dr. Maxcy reported.

Pollution and Disease

During the past quarter-century, with the general improvement in sanitation in the United States, the incidence of typhoid has continued to decline until the disease has practically disappeared from many cities and towns. As it retreated, it became more conspicuous as an outstanding problem in preventive medicine. Health authorities were impelled to investigate its occurrence thoroughly and to seek reasons for its persistence in limited areas. Under these conditions, said the report, it has become increasingly improbable that an occupational or place hazard or an important source of contamination of water supplies would long remain undiscovered by public agencies.

If the pollution of tracks, particularly around yards, had constituted an unsanitary condition especially favorable to disease spread, it might be expected that such areas would be the last from which the disease disappeared. Reports of such conditions are conspicuous by their absence, according to Dr. Maxcy.

Likewise, if disposal of human wastes from passing trains had constituted an important source of pollution of water supplies, this would be expected to become conspicuous as a cause of outbreaks of disease as other sources were excluded or minimized, but careful analysis of available data led Dr. Maxcy to the conclusion that nowhere was there an instance in which an outbreak of disease was attributed to pollution of surface water by passing trains or by drainage from tracks. "It can, therefore, be stated with reasonable assurance that information at present available fails to establish the existence of a public health menace" resulting

from the methods employed by the railroads to dispose of human wastes. While this does not prove that the menace does not exist, the report added, it is reasonable to assume that the railroads have been a "relatively unimportant route of dissemination" of organisms causing the commonly recognized enteric infections.

In further discussion of the potential danger of public water supply contamination through the discharge of human wastes from cars en route, the report quoted the United States Public Health Service's Drinking Water Standards to the effect that "it can hardly be considered as a safe rule to admit any water to a public supply without chlorination as a minimum safeguarding treatment in view of the present increased hazards of chance contamination resulting from the extension of recreational and migratory travel to many hitherto inaccessible places." If it is accepted that all surface waters are exposed to the chance of contamination from time to time, and that track pollution from passing trains is only one among many possible sources, then "safety must be sought in the design and operation of waterworks and in the quality of the finished product after appropriate treatment," the report stated.

The public health menace will then be insignificant because of the remote possibility that pathogenic organisms in wastes discharged from passing trains will survive natural purification processes and the sanitary safeguards of satisfactory drinking water supplies.

Apart from the "menace" to health involved, the federal Sanitation Manual's requirements for railroads also are based on the possible creation of a "nuisance" through "improper" disposition of wastes, the report pointed out. "At times and in particular places the disposal of sewage from railway conveyances has been improper in relation to environment and persons and, therefore, constituted a nuisance. This has not created a hazard which can be measured in terms of increased incidence of enteric disease. Facts now available support the conclusion that this practice has been relatively unimportant in comparison with many other factors in the environment," Dr. Maxcy stated in conclusion.

The complete report is available from J. C. Caviston, secretary of the A.A.R. Joint Committee on Railway Sanitation, 30 Vesey street, New York 7, at 75 cents per copy.

Protective Section Meeting Spurs Railway Police to Curb Crime

MORE than 100 members and guests of the Protective section of the Association of American Railroads attended its 27th annual meeting at the Hotel Statler, Detroit, Mich., June 17, 18 and 19. Chairman M. J. Max, chief of police of the Michigan Central (New York Central System), Detroit, presided over the three-day session, during which loss of freight through theft, and the part of railway police in curbing juvenile delinquency, were stressed.

Joseph A. Moynihan, presiding circuit judge of the state of Michigan, addressed the section and praised the railway police departments for their close cooperation with state and municipal police forces. He stated that juveniles were responsible for an alarming percentage of crimes, both against the railroads and the public, and urged that railroad policemen agitate for community club facilities for youth at points along their lines. "Only through youth," the judge declared, "will there be brought about a diminution of crime."

Committee Reports

W. I. Spitzer, chief special agent of the Chicago, Indianapolis & Louisville, was elected chairman of the Protective section for the ensuing term, succeeding Mr. Max. A. H. Cadieux, chief, department of investigation, of the Canadian Pacific, Montreal, Que., was elected vice-chairman.

The committee on postwar plans, headed by H. L. Denton, general superintendent of police, Baltimore & Ohio, Baltimore, Md., reported that it had prepared an outline of a training program for use of individual railroads as a basis for an educational program for railway police. The outline, published as A.A.R. Circular No. P-1032, includes chapters on general instructions and admonitions, definitions of legal terms, classifications of evidence, investigations of freight claims, car seals, government bonded freight, and other subjects which come before the railway police officer in the course of his duties. The committee emphasized the need for training of railroad police officers, stating that many have been placed on duty with little or no instruction.

The report of the committee on trespassing was presented by J. N. Godman, superintendent of police of the Reading, Philadelphia, Pa., who stated that instances of trespassing reported by member roads had shown an increase in

1946 over 1945, the first increase reported in six years. The committee urged that the railroads inaugurate anti-trespassing campaigns, and stated its desire to impress on the railroads the great economic value of a reduction in trespassing.

The report of the committee on law enforcement, presented by Mr. Spitzer, noted that the theft of baggage had become a "major racket" during World War II, and that these offenses were still on the increase. The cashing of worthless checks by the railroads, the committee reported, increased 100 per cent in 1946 over 1945. The report especially urged that railroad police departments seek the cooperation of the roadway departments in an effort to keep the rights of way free of track material. Discussion resulted in the unanimous adoption of a motion that the American Railway Engineering Association be advised that the Protective section of the A.A.R. looks with alarm at the growing number of instances where obstructions are placed on rails, frequently with disastrous results, and enlists the continued cooperation of the association and expanded efforts to keep the rights of way clean and free of loose track material.

Addresses

Ernest Jones, commissioner of public works of Detroit, welcomed the Protective section to the city. Charles Snyder, inspector, Detroit police de-

partment, addressed the section on "service to youth," bringing out that the railway police have an excellent opportunity to help in the prevention of crime through an intelligent understanding of youth. He appraised this function as of importance equal to the apprehension and conviction of criminals. C. L. Jellinghaus, vice-president of the Michigan Central, Detroit, who rose through the protective ranks to his present position, addressed the meeting briefly, stating that the number of crimes against the railroads, which had taken so long to reduce, is on the rise again since the war. Wm. A. Carlson, supervising agent, United States Secret Service, Detroit, described the development of that service, and portrayed the important part the railroad police had played in aiding it, particularly with respect to Presidential protection.

A. L. Green, special representative, Freight Claim division, A.A.R., talked on the "unlocated loss" of freight, noting that claims for freight "unlocated" or stolen rose 41 per cent in February, 1947, over February, 1946. "The police department," Mr. Green told the convention, "to the extent that its duties will permit, is obligated to investigate and direct attention, with suggested correction, to any condition which facilitates the loss of freight, whether through thievery or unexplained disappearance. Any of these 'unlocated' losses should be, in fact, chargeable to theft if the true cause could be determined. Where the special service or police department is properly equipped," he said, "lax methods can be uncovered and a great deal of property claimed lost can be recovered, or delivery to consignee established, through the thorough investigations police representatives are trained to make."

Erie Sand Plant Now Serves Both Steam and Diesel Power

WHEN the Erie installed its Diesel-electric locomotive facilities at Marion, Ohio, an automatic sanding plant was included to serve the Diesel locomotives. Recently, this same plant was made to serve the considerably larger requirements of steam locomotives which are serviced at Marion. It was not necessary to increase the capacity of the sand plant, and the sand is delivered to the steam locomotive sand towers at a distance of 374 ft. through two 4-in. sand pipes. Only one air jet at the sand plant end of each pipe is re-

quired to move the sand over this distance and to elevate it to the top of the dry sand towers which serve the steam locomotives.

The sand lines were designed with a booster air connection at their midpoint, but operation during the past winter has shown this precaution to be unnecessary.

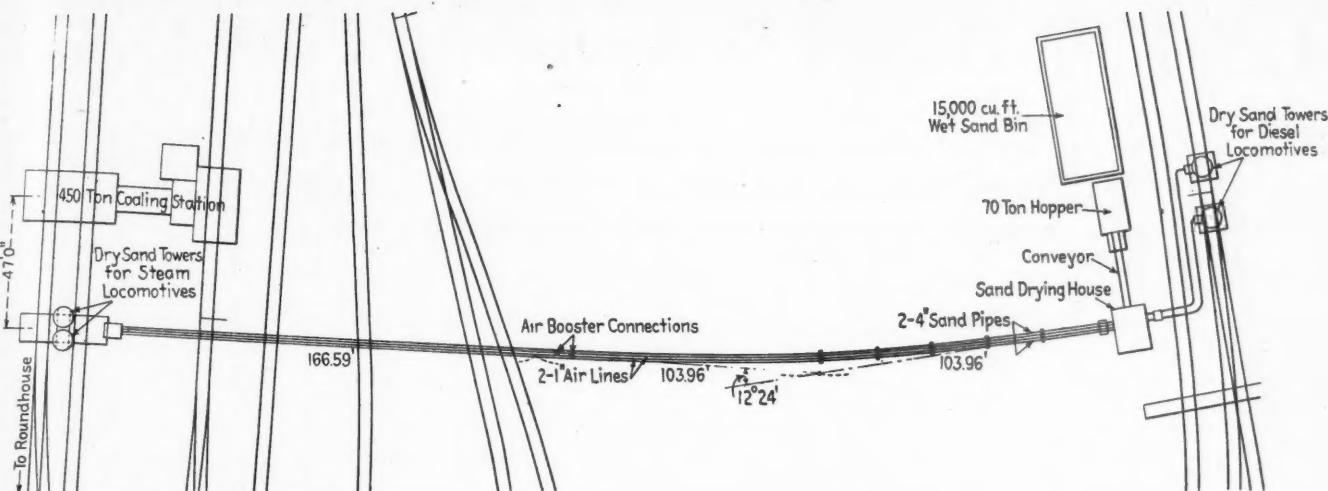
The sand plant originally served six 4-unit Diesels daily. A minimum of 37 steam locomotives are turned at Marion daily, one steam locomotive requiring as much sand as a 4-unit Diesel,

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Plan showing the location of sand plant and sand towers for serving both steam and Diesel locomotives

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or more. Supplying them with sand requires only 8 hours of plant operation per day. Seven passenger Diesels will also be served.

The sand plant, which was described briefly in the June 8, 1946, issue of *Railway Age*, includes a 750-ton open wood storage bin, from which wet sand is transferred by a locomotive crane

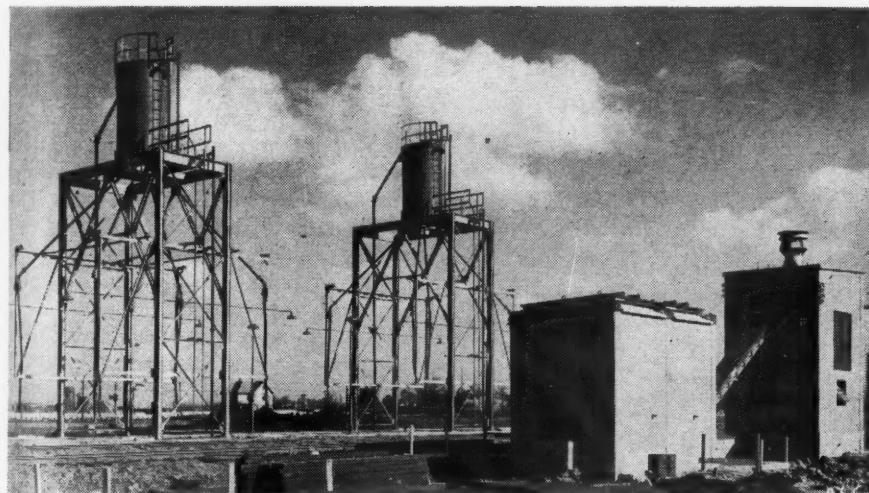
head storage tanks at the sanding platforms. After the wet-sand conveyors have been started by a push button, all operations involved in drying and elevating the sand proceed automatically.

Controls in the tower tanks call for sand when needed and stop the flow when the tower tanks are full. In the tower tanks for the Diesel locomotives,

shown at the right in the drawing of the tanks, the sand-elevating operation is controlled by pressure switches. When the sand rests against and opens both the upper and lower switches, no sand will be elevated. When the sand is drawn off until both switches are closed, sand will be elevated until both switches are again opened by the pressure of the sand in the tank.

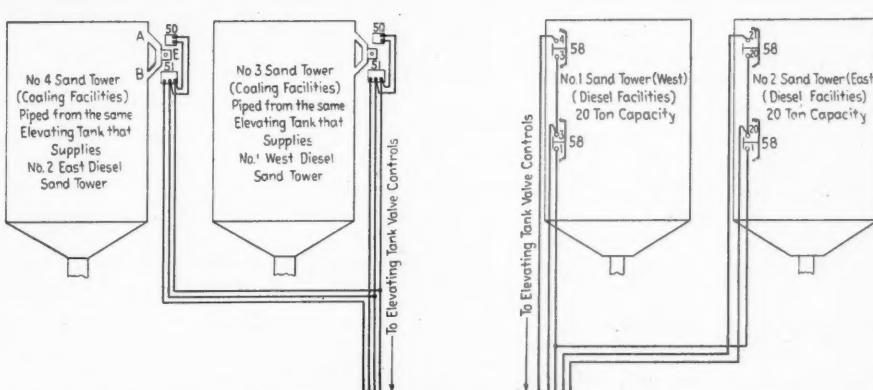
The electric-eye control used with the sand-elevating drums has been more successful in operation than the pressure switches and has been incorporated in the sand towers which serve the steam locomotives. This arrangement is shown in the two tanks at the left of the drawing. When the left-hand tank is filled to a point A, sand runs into the by-pass or gage pipe AB, blocking off light to the electric eye and stopping the further elevation of dry sand into the tank. When sand is drawn down to the point B, the sand runs out of the gage pipe. This allows light to reach the electric eye and elevating of sand is resumed.

A manually operated valve is used to direct the flow of dry sand either to the steam-locomotive or Diesel-locomotive sand towers.



General view of the sand plant

to a 70-ton concrete wet-sand feeder hopper. The wet-sand hopper is provided with a steam coil and drain tubes. This coil not only prevents sand from freezing in the hopper but starts it to dry as the water drains out through the tubes; this particular feature materially increases the output of the sand dryer. From the hopper, the sand is taken by a belt conveyor to a twin-unit steam sand-dryer. As the sand is dried, it falls by gravity into a gathering hopper, from which automatic gates control the flow over vibrating screens into two sand drums. When these become full, the sand is conveyed automatically by electric-eye controlled air to over-



Elevation of dry-sand tanks (two for steam and two for Diesel locomotives), showing two different types of level control

A. S. M. E. Diesel Symposium Concluded

Three additional papers by representatives of Fairbanks-Morse, Alco-G. E. and Baldwin report progress in standardizing details to reduce repair materials and expense

FOLLOWING the discussion of electrical features associated with Diesel locomotive design for reduced maintenance at the A. S. M. E. Railroad Division symposium in Chicago on June 17, reported in the *Railway Age* of June 21, representatives of Fairbanks, Morse & Co., the American Locomotive and General Electric companies and the Baldwin Locomotive Works presented their discussions of the subject in the order indicated.

Each of these papers, abstracted briefly in the following pages, stresses the progress which has already been made in standardizing detail engine and

other locomotive parts in the interest of reducing material inventories and repair expense. A willingness to cooperate with the A. A. R. Mechanical Division and the A. S. M. E. Railroad Division, as well as with individual railroads, in further efforts to promote standards and develop features of design which will minimize maintenance cost was also expressed.

The consensus was that any standards agreed upon must in themselves be susceptible of orderly change in order to take advantage of latest advances in building Diesel locomotives which will best meet railway operating requirements.

sible to obtain a standardization of many parts that are not now standard.

The statement has been made by some railroad men that as the number of Diesel units on any one railroad increases, the carrying of spare parts will become burdensome unless a greater standardization is arrived at. We would like to point out that this is not quite the way it sounds. A good many roads are purchasing, and will purchase in the future, a dozen or more units at one time. Some will purchase four times as many, and some repair parts will multiply four times as much with the larger number as with the smaller number.

Replacement Parts

The Diesel locomotive builders should carry replacement parts for the Diesel engine, electrical equipment, controls, and other parts in their branch houses in the territory in which their locomotives are in service. It is the practice and intention of Fairbanks, Morse to carry a supply for those parts which must, of necessity, be replaced. This does not mean, however, that the railroads should carry no parts, for they may need parts immediately, and consequently, they should carry a certain stock of those parts which they know from experience must periodically be replaced. However, the builder must carry parts in excess of what the railroads carry to insure prompt and efficient service.

The railroads have arrived at a good many standards—the standard coupler, standard hose, the steam pipe connections with valves. These were all necessary to hook the different units together. The electric jumpers between different units of the locomotive should, of course, be standard. The air brake companies have brought out a standard valve by which many of the different kinds of train control can be met, but all these things have been arrived at only after many years of experimenting and testing by the railroads.

Railroad men who service and repair Diesel locomotives may think that the locomotive could be designed in a way that would materially assist them in their work, and this is no doubt true in some respects. However, there are certain limits which have been placed

Diesel Locomotive Design for Reduced Maintenance

The subject of standardization of railway equipment will continue as long as we have railroads. Fairbanks, Morse & Co., in the design of its Diesel engine for locomotives, has gone far in standardizing the engine itself. The bearings, connecting rods, pistons, rings, liners, fuel injectors, and many other parts, are all standard whether they are for 1,000, 1,500 or 2,000-hp. units.

When Fairbanks, Morse started building Diesel locomotives, an attempt was made to obtain from mechanical departments of the various railroads all information possible as to what the railroads desired in a Diesel locomotive. You would be surprised at the number of different opinions obtained. No doubt all locomotive builders have gone through this same routine and no doubt all of them are attempting to build a locomotive that will satisfy the greatest number of customers.

Each locomotive builder would like to build a standard product, like the automobile companies, but, so far, Fairbanks, Morse has built few units without a number of changes requested or demanded by individual railroads. In checking over some of the changes requested, only in a few instances have different railroads requested the same

*By L. E. ENDSLEY
Consulting Engineer
and W. W. SCHETTLER
Chief Engineer, Engine and Locomotive
Division, Fairbanks, Morse & Co.*

alterations in design. All of these so-called minor changes always cost the builders more than they can charge the railroads. The only way to build any product at the lowest cost is to streamline the construction and build them alike.

We think the Diesel locomotive is yet too young to attempt to standardize all of its parts, especially between builders. We still have and always will have two- and four-cycle Diesel engines. These two could not be standardized unless you eliminate one or the other.

We believe that the best way to increase the number of standards between the builders would be to have a committee made up of railroad men who could bring together their combined experience, and, after full discussion, agree upon certain standardization, and then call in the locomotive builders. From this organization it might be pos-

upon the design of a Diesel locomotive, and these limits are mainly covered by two words—space and weight. The railroads have been satisfied for a good many years in taking coal and water for the steam locomotive every 100 miles or less, and now the railroad specifications for Diesel locomotives call for taking fuel and water once in 500 miles or more. This means that much weight is added by these long runs. This extra water and oil load means that the locomotive must really be made as short as possible in order that the frame and chassis weight can be kept down. This results in crowding the apparatus of the locomotive, thus reducing the space for inspection and servicing.

The Diesel locomotive provides added service for handling trains, such as dynamic brakes, and greater tractive force per ton of weight. All of these things add apparatus and weight, so the designer has some hard problems.

All builders are having trouble in getting boiler-water space in Diesel locomotives. We believe that consideration should be given by the railroads to the addition of another unit or tender in passenger service in which the train heating boilers, boiler water, and fuel for the boilers could be carried. In this set-up the locomotive power plant could be designed with more space around the engine and other apparatus necessary for power. This would allow for a greater fuel capacity in the locomotive proper for power. Some units in this set-up could be geared for 75 or 80 m.p.h. maximum speed and would make both a freight and passenger locomotive on many divisions. In this way the tender would be carried only when it was in passenger service. In this tender could be installed a small auxiliary unit for lighting and air conditioning the train if it was done by electricity.

Supervision and Instruction

Railroad men, at the annual meeting last December, made a good many suggestions as to what the builders should do to reduce maintenance. I think one of the most important and far-reaching suggestions was made by John Morris, mechanical assistant, Atchison, Topeka & Santa Fe. He suggested several things both for builders and operators of Diesel-electric locomotives. Of these many suggestions the first one mentioned by him was supervision and instruction of personnel on the railroads. There is little doubt that there will be a good many man failures unless proper instructions are given to the locomotive operators and maintenance men.

Another point brought out by Mr. Morris was the subject of "locomotive

load factor." In the old steam locomotive we do not need to worry about the load factor because if we overload the steam locomotive all that happens is that it stops without doing any damage to itself.

The fact is that on all railroads in the United States having low grades a steam locomotive will take any load over the division that it can start. This is not true with the modern Diesel-electric locomotive, due to its high starting tractive force. The modern Diesel-electric locomotive will start a train of many tons weight greater than it can take over the division. We believe that a larger per cent of the motor and generator troubles which some railroads are having are due to maintaining a greater tractive force than the motors and generators can stand.

Abuse Leads to Failure

A good place to start in the education of railway operating officers is with the train or yardmaster who makes up the train. Unless he is clearly instructed he may have a few extra cars for a given run so he puts them on the train and the Diesel-electric locomotive goes over the division all right, taking a little more time—but he thinks that is better than leaving these extra cars for the next day. Thus, he gets a new yardstick and continues to add a few more cars because the locomotive is taking them all right, but he does not appreciate that every day with this extra load

he is overheating his electrical equipment and doing damage that means failure later on.

All of the builders are limiting the horsepower of the Diesel engine itself. This is done in different ways, the most common being through a governor on the Diesel engine, so the speed of the train has no appreciable effect upon the Diesel engine itself. However, if the speed of the train is low and a tractive force greater than the continuous rating of the motors is maintained, there is bound to be damage done to the electrical equipment. All traction motors will do more work than their rating, as well as all Diesel engines will do more work than their rating, but if they are overloaded for long periods of time, the repair and maintenance cost must go up.

The suggestion was also made by one of the speakers in December that locomotives be built so that different makes of Diesel engines can be applied to them all. This, in our opinion, is not looking at all the facts. Different Diesel engines require different amounts of heat to be carried away by the lubricating oil and the engine jacket water, so that in order to change engines it would be necessary also to change the radiators and oil coolers. If this were done, it would be a great handicap on the installation of all Diesel engines as to space and supports of the Diesel engines.

The responsibility of maintaining and keeping in service Diesel locomotives at low cost is a joint one between the railroads and the builders.

Diesel Design Influenced by Maintenance Factors

By DANA R. STAPLES

The Baldwin Locomotive Works

Switching locomotives have been built at Baldwin since 1925. The Baldwin switching locomotives of 660 and 1,000 hp. are rugged machines. The main underframe is cast-steel, so designed that it requires no maintenance. In addition to requiring no maintenance, this sturdy structure provides protection to the crew as well as the Diesel engine and other equipment installed in the locomotive, particularly, in the event of wrecks or derailments.

The trucks are also cast-steel. The truck frames, wheels, axles and truck boxes are the same on both the 660- and 1,000-hp. locomotives. The rugged cast-steel construction minimizes mainte-

nance by reducing the number of failures. The brake work has standard Westinghouse equipment throughout. Brake heads and shoes are interchangeable with all switching locomotives.

The air compressors on our standard switchers are direct driven, manufactured by either Westinghouse or Gardner-Denver. This equipment is used by other builders and, even though the assembled compressors may not be interchangeable on locomotives of other builders, parts that require maintenance are the same.

Most of the switching locomotives are equipped with standard Type-E couplers. The length of the shank for standard practice could be the same; however, occasionally, due to sharp curves, it is necessary to use a longer shank.

The hoods of switchers are constructed with ample openings on the top and

sides to permit inspection and removal of parts of the Diesel engine or other parts of locomotive equipment. The hood is removable to facilitate major overhauls of the Diesel engine.

The cooling system on our present locomotives is equipped with air-cooled water and oil radiators. The radiators have ample capacity. Ample capacity in the radiator system will limit water and oil temperatures to reasonable values, thereby decreasing failures and maintenance of the Diesel engines. The radiators are installed in sections permitting replacement of individual sections.

Engine Details Standardized

The Diesel engines used in our standard switchers are six- and eight-cylinder 12 $\frac{3}{4}$ in. bore by 15 $\frac{1}{2}$ in. stroke, producing 660- and 1,000-hp. at 625 r.p.m. There are many parts common to both sizes including cylinder heads, pistons, connecting rods, main and connecting-rod bearings. The frame and bed are of sturdy fabricated construction manufactured in our own shops. The injection system, filters and other accessories are all of standard well-known manufacture. The rugged construction combined with conservative rating result in long life with a minimum of failures and maintenance.

[The paper here included reference to various types of Baldwin-built Diesel switchers and road locomotives including the 3,000 hp. 4-8-8-4 type.]

The 3,000 hp. locomotive is a universal type, well suited for either freight or passenger service. As a freight locomotive, it has sufficient traction motors to obtain a high starting tractive force, as well as a high continuous tractive force. With two units of this type coupled to form a 6,000-hp. locomotive, 16 traction motors are provided which result in high tractive force for heavy freight service. As mentioned, the pulling and buffing stresses are taken through the main truck frames and are not transmitted to the cab structure through centerpins.

In high-speed passenger service, the tracking qualities of this type of running gear have proven to be ideal. This results in reduced wear of the centerpins and with very light axle loads, approximately 50,000 lb. in conjunction with 42-in. diameter wheels, results in less maintenance of the road bed.

The advantages of a single type of locomotive for all service are apparent in that fewer items of spare parts are required to maintain operation of a group of locomotives.

All of our road locomotives are equipped with 42-in. wheels. Large size wheels reduce wheel wear and thereby maintenance replacements of locomotive wheels.

In many cases, the railroads desire

that the front of the locomotive present a smooth surface. This is to improve appearance and reduce danger, in the event of collision, of articles lodging at the front of the locomotive and possibly causing a derailment. To accomplish this involves some type of retractable coupler. On our locomotives, to meet this condition, we have arranged to supply a simple drop-type coupler, rather than a complicated type requiring pneumatic or hydraulic operating systems to retract the coupler. This indicates the thought in design to keep the equipment as simple as possible.

All of our locomotives have been designed with a view to keeping the number of pieces of equipment to a minimum. This is based on the theory that the fewer pieces of equipment supplied, will result in the least amount of maintenance. As an example of this practice, our locomotives are not supplied with a transition in the electrical circuits. This simplifies the electrical circuits and eliminates several pieces of electrical equipment.

A further example of this practice is

the arrangement of the radiator fan motors and the traction blower motors which receive their power from the main generator. This arrangement eliminates an additional generator. The motor-driven radiator fans and traction blowers eliminate the maintenance and replacement of belts. The cooling systems are arranged for automatic thermostatic control of water and lubricating oil temperatures. This feature reduces the maintenance on Diesel engine parts.

In designing these locomotives, we have attempted to use equipment, insofar as possible, of a type which is familiar to the railroads. As an example, we have provided a pneumatic throttle which includes pneumatic devices similar to those used in conventional air brake equipment.

The Diesel locomotive is in its infancy and nothing should be done to stifle its growth. As builders, we desire to improve our product and, as long as we do, there will be the problem of stocking materials to maintain out-dated equipment which is not a new problem to the railroads.

Many Features Incorporated to Reduce Diesel Costs

By J. W. TEKER and M. D. HENSHAW
General Electric Company

and

JOHN SEAGREN and M. D. HENSHAW
American Locomotive Company

packaged control units readily removed and replaced; (g) ample engine water and oil cooling system automatically controlled; (h) accurate and sensitive load control; (i) reduction in number of power plants used per locomotive unit; (j) protective devices for engine and electrical equipment.

Power Plant

A single power plant is used in each 1,500-hp. road freight and each 2,000-hp. passenger unit, which means reduced time for inspection and maintenance due to fewer units and parts. Other features contributing to low maintenance are light service parts, permitting easy handling within the cab. The engine and generator are built together into a single unit by means of an adaptor which eliminates problems of alignment and yet allows easy removal of the generator when required.

One of the principal requisites for reduced maintenance is rigidity in the engine structure. It is important not only in obtaining long service life of bearings but in avoiding vibration in the locomotive structure. In these engines the frames and bases are weldments and are thus inherently stiffer than cast structures. In addition, the distribution

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of the metal has been planned to obtain maximum possible longitudinal stiffness making the adoption of four-point suspension possible. The supports are arranged at points of small vibration magnitude and consequently little engine vibration is transmitted to the locomotive frame.

The welded cylinder block, which forms a receptacle for the cylinder liners and jackets, is completely protected from corrosion because the cooling water is contained between liners and jackets.

One of the principal reasons for the high availability of Diesel locomotives is the use of interchangeable precision-made parts. In these new engines, all wearing parts are strictly interchangeable without hand fitting. Moreover, these parts are accessible and most of them can be changed between locomotive runs, when necessary. Since previous experience with Diesel locomotive engines has indicated that most of the repair cost has been the result of failure or wear of cylinder heads, liners, bearings, pistons, connecting rods and crankshafts, particular attention has been given to these parts.

[The paper here gave additional details regarding the Diesel engine, auxiliaries, cooling system and ventilation.]

Generators and Motors

The development of electrical apparatus is inseparable from development of the Diesel engine. The traction generator must be designed to match the characteristics of the engine but certain parts, such as brushes, brushholders and bearings, are used interchangeably in the 1,500-hp. and the 2,000-hp. sizes. The major elements which cannot be designed for interchangeable use have generally long service life and, therefore, need be overhauled only at times of general overhaul. Therefore, development can be continued without freezing designs and yet with adequate protection for service.

Among features of these traction generators which contribute to minimum maintenance are silver-brazed armature connections, low commutator speed and lighter weight.

The traction motors of a Diesel-electric locomotive are undoubtedly subjected to the most severe operating conditions, with least opportunity for observation and maintenance of any of the equipment. The greatest effort is made to meet these conditions and to improve design continually. The traction motors used on these locomotives have many parts which are interchangeable with those in motors of older design and the new motors are identical for the 1,500-hp. and the 2,000-hp. locomotives, with 30 per cent greater rating than that of the older type.

Long life is built into the motors by particular attention to details, such as shafts in one piece of large diameter, a single forging for the commutator shell and armature head, a pinion and head of one piece with no bolted flange and a one-piece armature coil.

Long life of the pinion and axle gear depends upon adequate lubrication, since the entire tractive force of the motor is transmitted through the sliding contact of gear tooth and pinion tooth. Rugged construction of the gear case and special provisions against leakage are incorporated in the construction.

Controls

Many protective and operational features, influential in reducing maintenance on the major power units, are included in the control system.

Dual protection is provided against loss of engine lubricating oil pressure. The high-pressure alarm switch, effective only in the upper speed range, is arranged to bring the engine to idle speed. The low pressure switch, effective at all speeds, stops the engine. Oversized piping with adequate insulation is used for the connections to the switches, to prevent sluggish action at low temperatures.

A single temperature switch, responding to excessive water temperature from either bank of cylinders, brings the engine to idle speed. Alarms and warning lights are operated by pressure and temperature switches.

Engine overload is prevented by the automatic load-regulating action of the power-plant regulator. The generator demand is adjusted to match the engine ability over its entire speed range [The paper here included additional details regarding electrical protection and control features, arrangements for ready accessibility and repairs, and a brief discussion of the electro-pneumatic and dynamic brake equipment.]

Trucks

The freight and passenger units are equipped, respectively, with four and six-wheel roller-bearing trucks of the swing-bolster equalized type. The entire truck frame is an integral steel casting on which full elliptic springs support the swing bolster. The frame, in turn, is mounted on helical spring nests which rest on the equalizers. Both locomotives use 40-in. rolled-steel wheels and 6½-in. diameter journals.

The six-wheel trucks have double bolsters and are especially designed for high-speed operation. The center axle on this truck is an idler axle.

Traction motors can be readily removed by either dropping the wheel and axle assembly into a pit or by running the truck out from under the unit.

All trucks on the *A* and *B* freight units are basically interchangeable with each other and, therefore, can be used in any position on the locomotive. The same interchangeability feature is true of the trucks on the passenger locomotives.

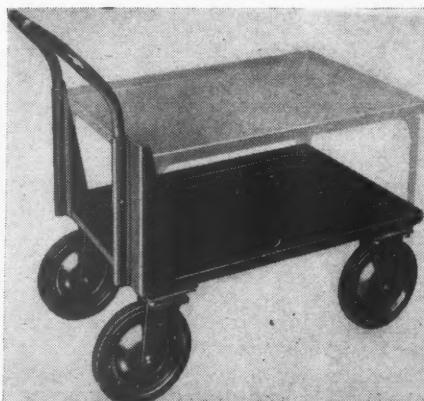
Conclusion

The above discussion indicates that reduced maintenance has been achieved primarily by designing for long service life through satisfactory operation.

The introduction of interchangeability and standardization will be of benefit to builder and operator alike and will be vigorously promoted to the greatest practical extent. However, it should be appreciated that this feature should not be pursued to such a degree that it will alter the main characteristics of the locomotive or hamper future improved designs.

All-Steel Utility Truck

A new utility truck, designed to handle a variety of loads, is being manufactured by Drinkwater, Inc., Waukegan, Ill. Said to be particularly suitable for commissary stores use, the unit has a one-piece bed and is designed to carry from one to three tiered platforms, thus increasing its adaptability for handling a greater variety of items. Reinforced seamless-steel channel construction is claimed to give the unit a large load capacity, while a reinforced bead around the edge of the chassis and platform is said to afford additional strength and rigidity. Mounted on four rubber-tired wheels, two with swivel and two with stationary casters, the truck measures 35 in. high, 41 in. long, and 24 in. wide.



The Drinkwater utility truck can perform many of the trucking jobs ordinarily assigned to heavier units



(Map) The chief lines of the Southern over which road Diesel service is operated. Chattanooga lies as the hub of a wheel

Diesels Average 12,000 Miles a Month

Southern fast freight service permits unusually high locomotive utilization and operating flexibility

BETWEEN March, 1945, and October, 1946, the Diesel-electric road freight locomotives on the Western lines of the Southern averaged 12,200 mi. a month. From May, 1941, to July 27, 1946, a Diesel-electric passenger locomotive hauling the streamlined "Tennessean" piled up 1,077,588 mi. without missing a trip, while the locomotive on the companion train showed 99.6 per cent availability in five years' operation. These figures explain why the Southern placed orders for 74 new Diesel locomotive units. Included among the freight locomotives that have piled up the high average monthly mileage figure is the first Diesel road freight locomotive built by the Electro-Motive Division of General Motors Corporation, which ran up a considerable mileage as a demonstration locomotive before being acquired by the Southern, and is still taking its regular turn, despite having accumulated more mileage than any other Diesel road freight locomotive in the country.

The Diesel road freight operations of the Southern are of two distinct types, and are quite differently arranged on the Eastern and Western lines, respectively. On the former, the freight Diesels are used exclusively on the main line between Washington, D. C., and Atlanta, Ga. Between Potomac yard, Va., (near Washington, D. C.)

and Monroe, 157 mi., several ruling grades are encountered, whereas, south of Monroe, the line traverses the Piedmont region for a long distance, where grades rarely exceed 1 per cent, a fact which permits the handling of heavy tonnage. Between Monroe and Potomac yard six 5,400-hp. Diesels handle trains of 3,800 tons northbound and 3,200 tons southbound each, compared with 1,900 tons northbound and 1,600 tons southbound maximum tonnage for heavy Mikado locomotives. The locomotives in this pool are serviced and shopped, when necessary, at Alexandria.

Between Monroe and Inman yard (Atlanta, Ga.), 472 mi., 12 or more three-unit 4,050-hp. Diesel freight locomotives are operated. The difference in the grade line on this section of the railway is indicated by a comparison of the tonnage handled by the four-unit locomotives on the north end and the three-unit locomotives of the south end. Between Monroe and Atlanta, the three-unit Diesels handle 3,300 tons northbound and 3,000 tons southbound. These Diesels are serviced and shopped at Spencer, N. C. (near Salisbury).

As will be seen from the map, Chattanooga, Tenn., forms a hub from which the Western lines of the Southern radiate like the spokes in a wheel. Freight Diesel operations on the Western lines follow somewhat the same pattern. There

are at present 14 three-unit Diesel freight locomotives in the pool based on Chattanooga, and, since this is the focal point, the Southern had plans drawn up and approved for one of the most extensive and modern Diesel locomotive shops in the country to be located there. The way was cleared for construction on this new shop early in 1947.

The longest Diesel freight run on the Western lines is between East St. Louis, Ill., and New Orleans, La., via Chattanooga, 1,084 mi. There are two Diesel-operated trains in each direction daily between these points. One Diesel-operated train is run in each direction daily between Cincinnati, Ohio, and Chattanooga, 338 mi., making connection at that point with the East St. Louis-New Orleans run. There is also one Diesel-operated freight train in each direction daily between Cincinnati and Atlanta, via Chattanooga, 491 mi.

The Diesels on the East St. Louis-New Orleans run are operated on the following basis. Starting at Chattanooga, they run through to East St. Louis. After a few hours at that terminal, they run through from East St. Louis to New Orleans. They remain in that terminal only a few hours before returning from New Orleans to Chattanooga. After completing this tour, which amounts to 2,168 mi., they re-

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main in the Chattanooga shop from 10 to 12 hr., and then are started on the same circuit again. Between East St. Louis and Huntingburg, Ind., they haul 3,300 tons; Huntingburg to Oakdale, Tenn., through hilly and then mountainous territory, 2,700 tons; Oakdale to Chattanooga, 4,200 tons; Chattanooga to New Orleans, 3,600 tons.

Between East St. Louis and Louisville, Ky., there are several bridges over which steam locomotives weighing more than 100 tons could not be operated, but, because of the weight distribution of the Diesels and the absence of dynamic augment, they operate over these bridges without difficulty.

The Diesels have also solved another operating problem at the south end of their run. Just north of New Orleans, the Southern crosses a six-mile long trestle over Lake Ponchartrain. This trestle was built many years ago and will not handle steam locomotives weighing more than 100 tons. Replacing this very long trestle with one of greater strength would involve the expenditure of many millions of dollars, but the operation of Diesel freight locomotives over it has solved the problem of increasing train tonnage, which, with steam locomotives, involved the alternate procedures, expensive in either case, of cutting the tonnage for operation across the trestle, or double-heading over it with two 100-ton steam locomotives.

The "diary" of the Southern's freight Diesel No. 6100, a three-unit Electro-Motive product, showing time spent in the hands of the mechanical and operating departments, respectively, at Chattanooga, together with inbound and outbound mileages, is set forth in the table.

The increased tonnage handled by the Diesels has permitted the Southern to work out a system of pre-classification which avoids a great deal of inter-

mediate switching that was formerly necessary. A through New Orleans block of cars is made up and put in trains in the East St. Louis yard. This block is added to at the intermediate terminals, but otherwise is not broken up during the whole of the 1,084-mi. run. At Louisville, a block is cut out and other cars are added. At Chattanooga, the large number of cars cut out for movement to Atlanta and farther south permits the consolidation of the trains from East St. Louis with the Cincinnati-New Orleans runs. On many occasions the trains leave Chattanooga loaded almost completely with cars for New Orleans, and almost invariably they leave Birmingham, Ala., with a full consist of New Orleans cars.

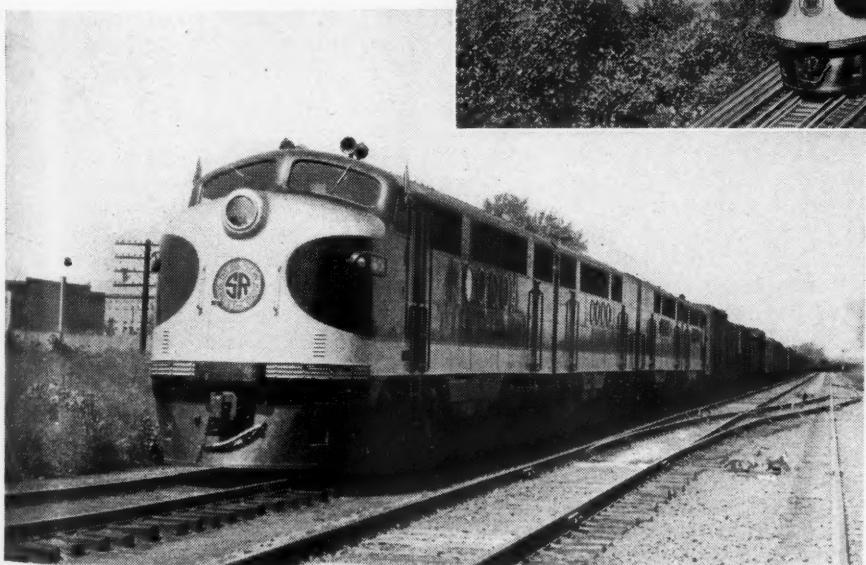
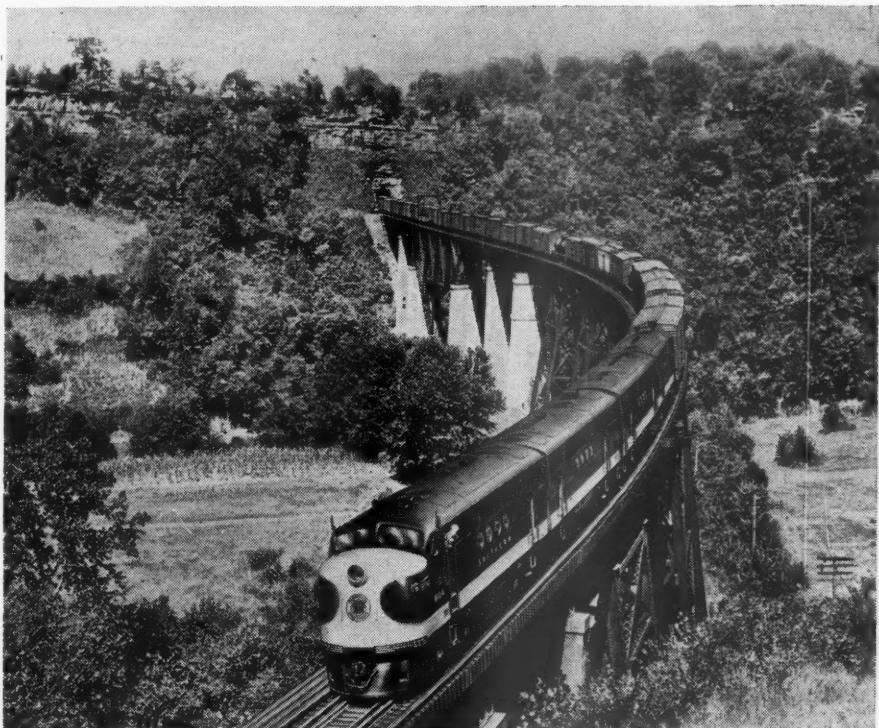
Northbound, these trains operate as solid New Orleans-Birmingham trains, without intermediate switching. At the latter point, they cut out the large number of cars intended for movement east and north via Atlanta and pick up Birmingham-East St. Louis and Bir-

mingham-Louisville cars. The Cincinnati cars are cut out at Chattanooga and the cars from Atlanta and south are added. In this way, there is a minimum of intermediate switching and resulting terminal delays.

The Cincinnati-Chattanooga Run

The Cincinnati-New Orleans train, which, as previously stated, is consolidated at Chattanooga with the East St. Louis-New Orleans train, has an overall schedule of 30 hr., for its 831-mi. run. The Diesels handle 3,500 tons out of Cincinnati, although helper service is required for the abrupt ascent out of the Ohio river valley leaving Ludlow, Ky., on the south bank of the river, where a grade of 1.36 per cent against southbound traffic is encountered for a few miles.

Somewhat severe winters, with occasional temperatures of zero or below, are met with in the Kentucky mountains, and when severe weather condi-



Above—Diesel freight locomotive No. 6100—the "diary" of which is here set forth in tabular form—shown in a famous photograph taken at the Cumberland river bridge, near Burnside, Ky. Left—Freight Diesel No. 6101, like its mates, speeds the Southern's freight service

Diary of a Southern Freight Diesel
Locomotive No. 6100
September, 1945

Note: Locomotive No. 6100 was credited with inbound mileage from point of dispatchment and outbound mileage to destination, each time it "showed up" at Chattanooga.

Time in Chattanooga

Date	Inbound	Mech. Dept.		Oper. Dept.		Total		Outbound	To	Date	Mileage		
		Hr.	Min.	Hr.	Min.	Hr.	Min.				In	Out	Total
2	N. O.*	6	20	1	30	7	50	St. L.	...	2	498	586	1,084
5	St. L.†	7	00	1	30	8	30	St. L.	...	5	586	586	1,172
7	St. L.	7	15	3	00	10	15	N. O.	...	8	586	498	1,084
10	N. O.	10	5	1	30	11	35	St. L.	...	10	498	586	1,084
13	St. L.	5	20	1	30	6	50	St. L.	...	13	586	586	1,172
15	St. L.	18	50	1	50	20	40	Cin.	...	16	586	333	919
17	Cin.‡	1	20	0	00	1	20	N. O.	...	17	333	498	831
19	N. O.	19	00	2	00	21	00	St. L.	...	20	498	586	1,084
22	St. L.	5	30	2	00	7	30	N. O.	...	23	586	498	1,084
25	N. O.	9	50	1	30	11	20	St. L.	...	25	498	586	1,084
28	St. L.	10	00	1	30	11	30	St. L.	...	28	586	586	1,172

11,770

February, 1946

Date	Inbound	Mech. Dept.	Oper. Dept.	Total	Outbound	To	Date	In	Out	Total			
2	St. L.	4	50	2	00	6	50	St. L.	...	2	586	586	1,172
4	St. L.	4	50	5	20	10	10	N. O.	...	5	586	498	1,084
7	N. O.	4	35	2	25	7	30	St. L.	...	7	498	586	1,084
10	St. L.	4	00	3	00	7	00	St. L.	...	10	586	586	1,172
12	St. L.	5	15	2	45	8	00	N. O.	...	13	586	498	1,084
15	N. O.	2	40	3	00	5	40	St. L.	...	15	498	586	1,084
18	St. L.	4	30	2	00	6	30	St. L.	...	18	586	586	1,172
20	St. L.	5	35	3	15	8	50	N. O.	...	21	586	498	1,084
23	N. O.	27	45	3	30	31	15	St. L.	...	24	498	586	1,084
27	St. L.	3	50	2	30	6	20	St. L.	...	27	586	586	1,172

11,192

September, 1946

Date	Inbound	Mech. Dept.	Oper. Dept.	Total	Outbound	To	Date	In	Out	Total			
1	St. L.	13	00	2	30	15	30	St. L.	...	2	586	586	1,172
4	St. L.	6	40	3	00	9	40	N. O.	...	5	586	498	1,084
7	N. O.	7	30	3	50	11	20	St. L.	...	7	498	586	1,084
10	St. L.	12	00	2	15	14	15	St. L.	...	10	586	586	1,172
13	St. L.	11	00	2	45	13	45	St. L.	...	13	586	586	1,172
16	St. L.	10	00	2	15	12	15	Cin.	...	16	586	333	919
17	Cin.	1	25	0	00	1	25	N. O.	...	17	333	498	831
19	N. O.	15	55	2	15	18	10	St. L.	...	20	498	586	1,084
22	St. L.	5	15	4	45	10	00	N. O.	...	23	586	498	1,084
25	N. O.	6	30	4	30	11	00	St. L.	...	25	498	586	1,084
28	St. L.	10	20	4	00	14	20	St. L.	...	28	586	586	1,172
30	St. L.	3	10	2	30	5	40	St. L.	...	30	586	586	1,172

13,030

January, 1947

Date	Inbound	Mech. Dept.	Oper. Dept.	Total	Outbound	To	Date	In	Out	Total			
2	Cin.	00	15	00	00	15	N. O.	...	2	333	498	831	
3	N. O.	13	25	3	45	17	10	St. L.	...	4	498	586	1,084
6	St. L.	11	40	2	30	14	10	Cin.	...	7	586	333	919
8	Cin.	00	15	00	20	00	35	Atlanta	...	8	333	150	483
9	Atlanta	3	40	1	30	5	10	St. L.	...	9	150	586	736
12	St. L.	5	35	2	40	8	15	Cin.	...	12	586	333	919
13	Cin.	00	15	00	10	00	25	Atlanta	...	13	333	150	483
14	Atlanta	4	55	2	45	7	40	St. L.	...	14	150	586	736
17	St. L.	4	00	3	30	7	30	St. L.	...	17	586	586	1,172
19	St. L.	11	45	3	30	15	15	St. L.	...	20	586	586	1,172
22	St. L.	4	25	4	40	9	5	N. O.	...	23	586	498	1,084
25	N. O.	4	30	00	00	4	30	St. L.	...	25	498	586	1,084
27	St. L.	10	30	2	00	12	30	Cin.	...	28	586	333	919
29	Cin.	00	15	00	20	00	35	Atlanta	...	29	333	150	483
30	Atlanta	3	30	3	30	7	00	St. L.	...	30	150	586	736

12,841

tions occur it is necessary to reduce the tonnage on steam locomotives, sometimes for as long as ten days in a row. The Diesels, unaffected by cold weather, handle the same tonnage regardless of the temperature. Another factor on the Cincinnati-Chattanooga line is the presence of numerous tunnels, since for many miles the railway goes through one range after another of hills or mountains. There are 16 tunnels on the line, one of them well over a mile in length, and smoke and gas difficulties that have been encountered with steam operation are relieved by the use of several Diesels over the line.

The speed at which the Diesel-operated freight trains may be run is another factor of importance on the Cincinnati-Chattanooga line. As a rule, the 333-mi. run is made with only two stops

for any purpose whatever, since, because of their speed and independence from coal and water stops, the Diesels can keep their trains out of the way of passenger trains on this double-track line. The first stop is usually made at Danville, Ky., 116 mi. south of Cincinnati, to change crews, and the second stop at Oakdale, 138 mi. from Danville, for the same purpose.

A fast Diesel-operated freight train is run daily from Cincinnati to Atlanta. It is known as the "Spark-plug" and handles principally automobiles and automobile parts, the latter being shipped by a large automobile manufacturer from Detroit, Mich., to its assembly plant at Atlanta. This train leaves Cincinnati at 6 a.m. and arrives in Atlanta at midnight, making the 491-mi. run in 18 hr. The Diesel

locomotives used on this run come back to Cincinnati on fast perishable runs from Atlanta.

Sixty-eight new Diesel units for which the Southern placed orders with delivery scheduled at regular intervals during 1947, are all of the new "F-3" type, manufactured by Electro-Motive. Each unit will exert 1,500 hp., instead of 1,350 hp., but the additional horsepower will be used in speeding up the freight schedules, rather than in hauling more tonnage per train.

Passenger Diesel Operations

The Southern began road Diesel operations with the inauguration of its streamlined trains, the "Southerner" between New York and New Orleans, and the "Tennessean" between Washington and Memphis, Tenn. As previously stated, the locomotives of these trains have each piled up more than a million miles, with a high percentage of availability. Many other passenger trains are operated with Diesel locomotives, including the "Pelican" and the new "Sunbeam." After a wartime hiatus of several years, the latter began operations on December 7, 1946, between Cincinnati and Hampton, Fla. This train is powered with the new "F-3" Diesel units. The "Ponce de Leon" between Cincinnati and Jacksonville, Fla., is powered in each direction by Diesel locomotives manufactured by the American Locomotive Company.

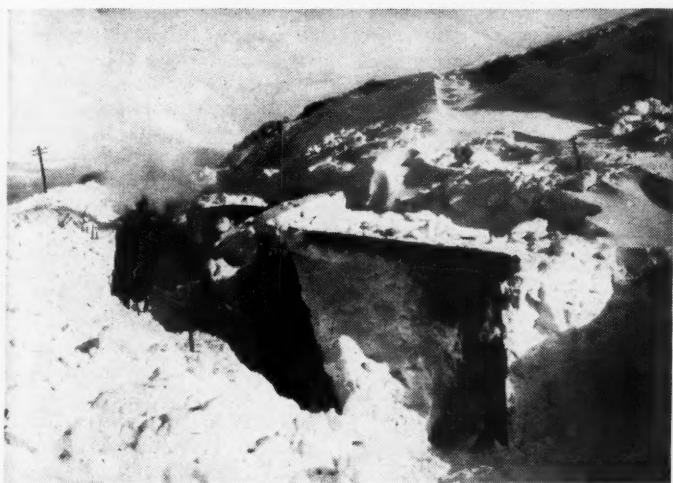
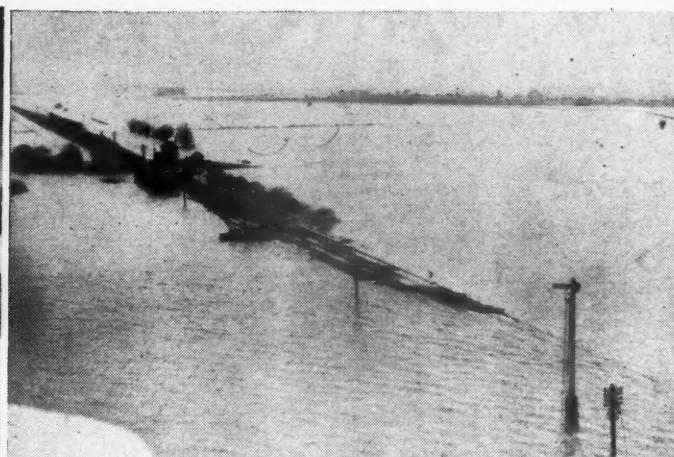
A most interesting utilization of Diesel passenger locomotives is found in the "swing" operation between New Orleans and Bristol, Va., under which four two-unit Diesel passenger locomotives have replaced 14 steam locomotives formerly required to protect these runs. Under this schedule, each locomotive goes through a tour beginning at New Orleans, leaving there on train No. 42 at 8:15 p.m. one day and arriving at Bristol, 739 mi., at 6:45 p.m. the following evening. The locomotive leaves Bristol on train No. 17, at 2:10 a.m. the following morning, proceeding to Birmingham, 385 mi., where it arrives at 12:55 p.m. the same day. It returns to Bristol the same afternoon on train No. 18, leaving at 4:15 p.m., and arriving at Bristol at 2:45 a.m. the following morning. It leaves Bristol on train No. 41 at 9:30 a.m., the same morning, arriving at New Orleans at 7:55 a.m. the following morning. The locomotive is then held over until evening, when it begins its circuit again on train No. 42. Thus, a locomotive leaving New Orleans Monday evening is back in New Orleans early Friday morning, after having completed a tour of 2,248 mi. It has a 12-hr. layover before it begins another similar tour on Friday evening.

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Top left—Looking more like a haven for skiers in an Alpine village was the station at Barras. Tracks are in the center foreground—buried under 20 ft. of "skiers' delight." Bottom left—Even the snow plows near Barras station had to be dug out before they could clear track or go to the aid of stranded trains. Top right—The West river signal tower under water near Ely. Bottom Right—Tottenham station as seen from a bridge

The London & North Eastern vs. Winter 1947

Plagued unceasingly by cold, snow and floods during February and March the London & North Eastern had a continuous battle on its hands which will doubtless long be remembered. Sometimes the railroad won temporarily, only to have the weather paralyze everything a few hours later.

Severe weather set in on January 23, and throughout the whole of Britain the temperatures seldom rose above the freezing point during the following eight weeks.

On February 3 blizzard conditions developed in the North Midlands and Yorkshire. Winds of gale force drove falling snow into drifts which made service spasmodic and cut signal and telephone communications. In some areas all service had to be suspended. What progress was made during the next three days in clearing track was nullified by more heavy snows which continued to fall all week-end.

Severe weather in Scotland on February 4 blocked lines in the Border counties, despite efforts to keep them open by plowing. Two snowplows got stuck in drifts and a light engine dispatched to their aid failed to reach them. The crews returned on foot. In most instances where passenger trains were held up it was possible to keep the

cars heated and passengers suffered little discomfort other than delay.

Despite intermittent snows and freezes some progress to restore normal operations was made during the early weeks in February only to be completely nullified by another snowfall on February 26. Scotland and northeast England were again buried, and disruption of service was widespread.

More snow fell on March 4, producing results of far more serious consequence than any previously encountered. Throughout the entire system snowplows and light engines were run continuously, but drifts formed and reformed as deep as ever immediately after the engines had passed, so lines quickly became impassable within a short time of clearance. Engines and plows sent to the aid of stalled trains got stuck on the way or experienced difficulty in getting back to the point of origin.

Another blizzard of extreme intensity developed on the evening of March 12. In addition to snowdrifts, maintenance of telephone communication became a serious problem as poles had snapped off and splintered because of the weight of snow and ice on the wires, resulting in a total failure of signals, bells and gongs, and control and other telephone and telegraph

communications on the Manchester-Sheffield line.

Then, to further torment exhausted crews, came rains, the thaw and subsequent floods. Rain replaced snow in the southern half of England on March 10, and by the thirteenth severe flood conditions were in effect. Heavy gale winds added to the difficulties by blocking lines with fallen trees, and felling telephone and telegraph lines. Stations and classification yards were under water, and equipment was immovable. By March 19 some sections of track lay under water as much as 18 to 27 in. and it later rose an additional 10 in.

Scotland and northeast England meanwhile were still trying desperately to cope with snow. During the entire period the line from Barnard Castle to Kirkby Stephen had defied all the efforts of hundreds of men to reopen it. On February 3 that line became blocked by drifts 20 ft. deep and more, and it was not until March 31 that a single track could be cut open. Jet aero-engines and blasting with gelignite failed to make any impression on the snow, and the job was left to manual workers. Not until late March and early April did the road succeed in getting its equipment and schedules back to normal.

GENERAL NEWS

F.R.P. Head Renews Attacks on Bankers

"Western Agreement" charges
draw vigorous reply
from Jeffers

Carrying to the Midwest and the Pacific Coast their campaign to enlist support for their program to provide American railroads with "efficient, progressive, confident" leadership, the chairman and the president of the Federation for Railway Progress have spoken this month before groups in many cities in this territory. Particular interest was aroused by the remarks of Robert R. Young, chairman of the federation and also of the Chesapeake & Ohio and Alleghany Corporation, at the Los Angeles, Cal., convention of the National Federation of Sales Executives.

Mr. Young told this gathering that most of the railroads are managed by a closely knit "charmed circle" of New York financiers and insurance company officers, whose particular preserves, he indicated, are roads that have gone through bankruptcy proceedings in recent years. "By abusing our bankruptcy laws," he said, "your insurance companies, abetted by the Interstate Commerce Commission, have decided that 30 of your railroads are too good, that they were overbuilt back in the 1920's, and that they have to be shrunk back 30 per cent, or some one billion and seven hundred millions of dollars. This, despite the fact that these railroads are carrying this year one-third more freight than they did in the boom year, 1929.

Hits at Voting Trusts—By S. E. C. standards of truth in securities, the bankers who originally sold those securities, the insurance companies who bought them, and the I. C. C. members who approved them, should be in jail. Either they were fraudulently sold in the first place, or they are being fraudulently wiped out now. For certainly these railroads are more essential, more irreplaceable today than they were when the new securities were first bought out of your insurance premiums and the savings of the trusting small investor—a majority of whom were women.

"This unbelievable reversal of Congress' instructions to the I. C. C. in the Transportation Act of 1920, that a sound transportation system be maintained, has occurred in order that politicians might pander to Wall Street-R. F. C. created voting trusts."

Turning to the effect which he sees this control having on the railroads, Mr. Young asked, "Why have only 619 sleeping cars been built in the past 14 years—hardly

enough for an American Legion convention, when 2,771 were scrapped during the same period? Because those who control the sleeping car business decided to discourage that business—a decision not unrelated, perhaps, to the wishes of their good banking clients, the air lines, motors and bus lines. The railroads were notified back in 1936 that, if they expected Pullman to supply them new sleepers in the future, they would have to assume all the risks and give Pullman all the profit. In the face of this one-way proposition the only sensible thing for the railroads to have done was to encourage a new competing sleeping car company—indeed, they should have long before—or, failing in that, to buy new cars and operate them themselves. . . .

Says Railroads Prefer Freight—"Railway executives, too, it seems, would just as soon see passenger business peter out, for it made freight train operation more complicated—and the traveling public was always complaining. The air lines and motors, according to their bankers, and backers, were eventually going to get all the business anyway."

There is no need to be pessimistic about the future of the railroads' passenger business, the C. & O. chairman insisted. "With styled equipment and service, agency promotion and advertising," he said, "rail travel could be several times what it is today. Only 10 per cent of highway travel attracted to the rails would boost rail revenues 100 per cent. We have as much to sell as Europe ever had, yet the vast majority of Americans are never encouraged to think of traveling in their own country, except by death in the family. Even then they get no sympathy from the ticket seller. The industry which, because of its heavy fixed overhead, can benefit the most from the services of the sales executive has made no provision for him on its organization charts. Here is a 30-billion dollar industry—135 great corporations—which spends for advertising less than a single tooth paste manufacturer. . . .

Capitalism Endangered—"It is not only the Pullman passenger who has been injured by the disappearance from the railroads of the last vestiges of the fundamental American principle, competition, through direct ownership management. The railroads have in the past primed one-third of all American industry. As they expire, so expires the capitalistic system. Already confiscatory taxation has dried up virtually all sources of private investment capital. Witness our great industries selling for less than net current asset values at a time of record-breaking earnings. . . . And this is the most essential industry in the richest nation in the world, the primer of one-third of all American industry, the bell-wether

(Continued on page 1318)

Plan Now for Future, Is Barriger's Plea

Need to integrate speed, mass production; hails "Train of Tomorrow" as "historic"

"Let us all constitute ourselves 'vice-presidents in charge of what shall we do tomorrow,' to help achieve the transition of these great railway plants into the transportation machines which will be required to meet the service and cost standards necessary for competitively successful operation in the years which lie immediately ahead," John W. Barriger, president of the Chicago, Indianapolis & Louisville, urged in an address at Indianapolis, Ind., on June 10. He spoke before the Ohio Valley Transportation Advisory Board on "Grooming the Iron Horse for Victory."

Touching on the subject of management, Mr. Barriger stated: "It is a widely recognized military axiom that a plan can be no better than the information on which it is based. Intelligence, which is the military term for information about the problems and obstacles ahead and around us, must also be recognized as one of the principal ingredients of successful management. It is of no less importance in business affairs than in wars, even though not quite so formally recognized and organized. Every business should have its own equivalent of the intelligence department of the Army to keep it informed of the dangers and uncertainties which beset it."

The Monon president referred to the shippers advisory boards as "both the railroads' intelligence department and their automatic block signal system of economic conditions which lie ahead." Without the information furnished by these boards, he added, the violent changes in demand for railroad service over short spaces of time since 1930 "could have produced devastating deficiencies and surpluses of transportation and these, in turn, would have had most serious repercussions upon the railroads."

Asserting that "railroad men must be indoctrinated with the fact that speed and low cost are their greatest weapons of offense and defense," Mr. Barriger told the group that these characteristics cannot be fully achieved until the railroads "voluntarily adopt the corporate status of a mass production industry." He expressed the opinion that had the railways been amalgamated 30 years ago into a limited number of great systems, they would have achieved an intensive development of their properties, with subsequent reductions in cost and improvement of service that have been "beyond the range of attainment on the required operating basis of excessive com-

petition and duplication of service and facilities." He said that the mass production methods which would have followed the development of super-systems would have made the railways immune to "traffic erosion" by external competitive agencies of transport.

Mr. Barriger praised General Motors' "Train of Tomorrow," declaring: "I unhesitatingly and unqualifiedly predict that the "Train of Tomorrow" will be as historic and eventful and prophetic a development in railway passenger transportation as its [Electro-Motive] Diesel locomotive has been in that field of railway motive power. The Monon, therefore, is exceedingly proud of having had the privilege of being the railroad host to the "Train of Tomorrow" on its very first run from Chicago to French Lick Springs (Ind.), and return."

In another portion of his address, the Monon president commented: "I believe that in spite of the uncertainties and problems of the moment, that this country stands upon the threshold of another great surge of economic and industrial progress and all of us will share generously in it if we will but adapt ourselves and our organizations to the requirements of the future. We must think and plan with our intelligence and our foresight and our courage and not with our memories and prejudices and fears."

Floods Disrupt Train Service Between Chicago-West Coast

New floods washed out railroad bridges and inundated tracks in Nebraska and Iowa this week, crippling train service between Chicago and the West coast. Trains were as much as 12 hrs. behind schedule due to re-routing, slow orders or complete stoppage. Service was similarly affected in other sections of the Midwest, where, since the early part of June, the railroads have been hampered by flood conditions.

The Union Pacific was without its main line through Nebraska for a time this week, and the lines of the Chicago, Burlington & Quincy continue to be out at several points in the stricken area. The effect of the floods on the various railroads has been as follows:

Chicago, Burlington & Quincy. — This road, probably the hardest hit of the railroads during the past three weeks of floods, (see *Railway Age* of June 14, page 1225), last week suffered a washout at Cambridge, Neb. This further disrupted its through service between Chicago and Denver, Colo., which had earlier been halted by a bridge washout at Red Oak, Iowa. The latter necessitated detouring to Shenandoah, Iowa, and thence via the Wabash to Council Bluffs. To detour around the Cambridge washout, the road has re-routed trains over the U. P. from Lincoln, Neb., to Sterling, Colo., and thence to Denver. The road's line between Lincoln and Alliance, Neb., is also out of service due to bridge washouts. As a result, Burlington trains detour via the U.P. to Sterling, thence over the Burlington's own line to Alliance. The road's service through Ottumwa, Iowa—point of two previous sieges of high water—has been restored. Floods continue to prevail in the vicinity of West Quincy, Mo., and at Han-



Facilities of C. B. & Q. at Hannibal, Mo., under water

nibal, Mo., necessitating detours around these two points.

Union Pacific. — Transcontinental trains of the U. P. were forced to detour around its main line across Nebraska due to washouts, employing the following route: Cheyenne, Wyo., to Denver, thence to Manhattan, Kan., and Grisland, Neb. Service on the regular line was restored on June 24. Washouts on the U. P.'s Beatrice branch in the southeastern sector of the state were also reported.

Wabash. — This road's line between Brunswick, Mo., and Omaha, remains out of service, with high water at a number of points on the line. Facilities at Hannibal, Mo., were still under two feet of water on June 23, but a resumption of service was anticipated there on the following day. Wabash trains to Quincy, Ill., continue to be detoured, and the road's line between Moulton, Iowa, and Ottumwa is expected to be out of service until next week. Service via Des Moines, which was halted on June 5, was resumed on June 19.

Missouri Pacific. — This road has suffered disrupted service between Kansas City, Mo., and Omaha, Neb., necessitating detours around washouts. Freight trains on June 23 were operating through 17 in. of water at Booneville, Mo., with the aid of pushers. M. P. trains detoured via connecting lines west of Osawatomie, Kan.

Minneapolis & St. Louis. — On June 23, this road reported that heavy rains northward from Des Moines for approximately 190 mi., caused temporary cessation of all train service via its line between the latter point and Albert Lea, Minn., and between Fort Dodge, Iowa, and Spencer. It anticipated completion of repairs within 36 hr.

The M. & S. L. was unable to detour because of damage to other roads in the area. A portion of the road's main line was submerged near Eddyville, Iowa, but a resumption of service was scheduled for June 24.

Chicago Great Western. — Bridge and track washouts attributed to "flash" floods have halted this road's service completely between Des Moines and Kansas City, and between Fort Dodge and Council Bluffs. Because all roads in the area have been similarly affected, the C. G. W. has been unable to maintain service by means of detours.

Chicago, Rock Island & Pacific. — This road suffered track washouts between Council Bluffs and Avoca, on its Rocky Mountain route, necessitating detours via Belleville, Kan., over its own lines, to Kansas City. R. I. service between Des Moines and Kansas City, which was disrupted during the early stages of the flood, has been restored.

Chicago, Milwaukee, St. Paul & Pacific. — High water at Perry, Iowa, on the Milwaukee's Chicago-Omaha main line, halted all traffic via this route on June 22. It was restored to service the following day.

The Chicago & North Western's main line between Chicago and Council Bluffs was out of service on June 23, due to washouts in Iowa. One track was restored to service on the following day. The main line of the Atchison, Topeka & Santa Fe at Henrietta, Mo., is threatened, but as this issue of *Railway Age* went to press it had not been affected.

Crucible Steel Completes New Railway Spring Plant

Marking the completion of the first large project in the \$30,000,000 expansion and improvement program of the Crucible Steel Company of America, officers and plant managers of the company toured its new spring works at Pittsburgh, Pa., on June 17, accompanied by editors and writers from newspapers, industry magazines, and technical journals.

One of the country's most modern plants for the manufacture of heavy-duty coil

and elliptical springs, the Crucible Steel spring works supplies thousands of different sizes and shapes of springs to railroads direct, to car and locomotive manufacturers, and to builders of special heavy equipment. The 51-in. coil springs for the Duryea cushion underframe are produced at this plant. Automatic machinery and special processes, largely designed and



The new spring works of the Crucible Steel Company of America at Pittsburgh, Pa., produces a variety of car and locomotive springs both of the coil and elliptic types. A foreman is shown checking a few of the completed orders for coil types

installed by M. V. O'Donnell, manager of the plant, and his production staff, have been adapted to spring manufacture in the new plant.

Until May, 1947, Crucible Steel spring operations also were carried on in the McKees Rocks (Pa.) plant where the company's spring-making activities began in 1909. The new spring works was acquired in 1945. The McKees Rocks plant was kept in operation during the two-year period of consolidation and modernization which today is completed in all major details. The new plant has a capacity of about 3,000 tons of springs per month.

Professors Take Refresher Course on Diesel Engines

Under the sponsorship of the Diesel Engine Manufacturers Association, representing 21 large Diesel engine manufacturers of the country, more than 60 professors in Diesel engineering, representing 52 colleges and universities in all parts of the country, took a practical refresher course in Diesel engines in a conference held in Chicago during the week of June 23. Designed to advance the knowledge of Diesel engine design and operation throughout the teaching profession in engineering schools, and through these schools among engineering students,

the program of the conference, all-inclusive in character, extended through six days, with all-day sessions at both the Illinois Institute of Technology and at Northwestern University.

After opening at Illinois Tech on Monday, members of the group were guests of the International Harvester Company at its Melrose Park (Chicago) plant on Tuesday; Northwestern University, at Evanston, Ill., on Wednesday; the Electro-Motive Division of the General Motors Corporation, at LaGrange, Ill., on Thursday; and Fairbanks, Morse & Co., at its Beloit (Wis.) plant, on Friday. The final session was held in a Chicago hotel on Saturday to crystallize the observations of the week and to permit discussion of matters relating to Diesel courses of study.

At each of the institutions or plants visited, the educators were addressed by specialists in different phases of Diesel work, were taken on conducted tours of production, test and research facilities, and were offered various forms of cooperation in their education programs. The meeting this year was the outgrowth of a two-weeks' course last year for teachers of Diesel engineering at Pennsylvania State College—also conducted with the cooperation of the Diesel Engine Manufacturers Association.

Missouri Pacific to Dieselize Entire Division

The Missouri Pacific has announced that it will completely Dieselize its 564-mi. Central Kansas-Colorado division, comprising virtually all of its main line between Kansas City, Mo., and Pueblo, Colo. In order to consummate the plan, 39 of the 49 Diesel-electric locomotives recently ordered (see *Railway Age* of May 17, page 1051) will be assigned to this division, substituting for steam operation of passenger, freight and switching service.

Atkinson Seeks "Even-Handed" Justice for Railroads

Arthur K. Atkinson, president of the Wabash, addressing the Kansas City Club at Kansas City, Mo., June 11, decried action of the Department of Justice in suits already filed, and additional litigation planned against the carriers, asserting that many competent observers believe that the objective of that department is to have the government take over the railroads. He stated that "the record of this department [of Justice] during the past few years lends a great deal of credence to this belief."

Mr. Atkinson pointed out the incongruity of statements by many government officials, on the one hand, that the railroads are so vital to our nation in times of both peace and war, and government action, on the other hand, discriminating against the rail carriers with inequitable taxation, undue regulation and suppressive legislation. In asking for "even-handed" justice, Mr. Atkinson noted the inequity of action by Congress in the Crossover Law, calling for a 6 1/4 per cent retirement tax on railroad employers, while the same Congress froze the general Social Security Tax for non-railroad employers at one cent.

"The railroads," Mr. Atkinson told the club, "are looking to the future, to the changes which advancing technology is bringing, and to better service, which continued investment in plant and equipment will make possible. It does seem to me, however," he said, "that they should be assured of such governmental policies as will encourage rather than hinder the development of the better transportation service which they can and should render."

E. G. Bailey A. S. M. E. Nominee for President

E. G. Bailey, vice-president of the Babcock & Wilcox Co., has been nominated for the office of president of the American Society of Mechanical Engineers for the year 1947-48. Formal election is by letter ballot, but nomination is equivalent to election. Nominees for vice-presidents for two years are: Region 1—Frank M. Gandy, associate of Charles T. Main, Inc., Boston, Mass.; Region 3—Paul B. Eaton, head of the mechanical engineering department, Lafayette College, Easton, Pa.; Region 5—Thomas E. Purcell, general superintendent of power stations, Duquesne Light Company, Pittsburgh, Pa., and Region 7—J. Calvin Brown, head of the firm of J. Calvin Brown, Los Angeles, Cal. Named directors-at-large are: For three years—J. B. Armitage, vice-president in charge of engineering, Kearney & Trecker Corp., Milwaukee, Wis.; for four years, A. L. Penniman, general superintendent of operations, Consolidated Gas, Electric Light & Power Co., Baltimore, Md.; and, for four years, William M. Sheehan, vice-president, General Steel Castings Corporation, Eddystone, Pa.

F. R. P. Head Renews Attacks on Bankers

(Continued from page 1316)

of our capitalistic system. How, then, is it to renew itself—at the expense of the state? Certainly you insurance policy holders and private investors, who own all of it, do not propose to have it go on eating up the provision you have prudently made for you old age. . . . I reassert, a small eastern clique has burrowed in at the top of a nationwide railroad-banker-lawyer monopoly, which is stronger than the government, which dictates foreign as well as domestic policy. It threatens our capitalistic system, our American way of life."

In his discourse Mr. Young referred also to the so-called Western Agreement, an "anomaly," he said, that included all 32 railroads west of the Mississippi, of which Averell Harriman, now secretary of commerce, was, in 1932, the speaker observed, elected first chairman of the committee of directors. "Westerners it seems can be untractable," Mr. Young observed, "that was why the agreement was in writing. In the more honorable East the railroads had always been able to suppress competition orally. Now you can better understand why the Union Pacific's 'City of Los Angeles,' which can easily make the run from Chicago very much faster than the Santa Fe 'Super Chief' since its run is 416 miles

shorter, arrives here [Los Angeles] in the same elapsed time."

Ashby's Comment—Union Pacific officers, including President Ashby, and other spokesmen for the western railroads, including Ralph Budd, president of the Chicago, Burlington & Quincy, were quick to challenge the validity of Mr. Young's assertion that competition between western roads had been suppressed, and to point out that the C. & O. chairman was "488 miles wrong" in comparing the route of the "City of Los Angeles" to that of the "Super Chief" between Chicago and Los Angeles. "Actually it is 72 miles longer," it was explained.

On June 9, William Jeffers, vice-chairman of the board of directors of the Union Pacific, and former president of that road, spoke in Los Angeles at the annual convention of the American Society of Refrigeration Engineers, at which time he made a further reply to Mr. Young's statements. The especial interest of Union Pacific officers in the remarks of the C. & O. chairman was traced not only to the erroneous comparison between Chicago-Los Angeles mileages and his comments about "Harriman management" of the U. P., but also to an article in Advertising Age, based on an interview with Mr. Young, in which he was said to be considering the possibility of purchasing Union Pacific stock. "We have no interest in the U. P. at present, but it could be acquired," he was quoted as saying. Commenting on this report, Mr. Ashby said, "It looks like Young finally has decided to get into the railroad business. He needs strong ones to support his weak ones."

In his speech, Mr. Jeffers, after discussing some of the activities of Henry Wallace, remarked, "We have, in my opinion, another very disturbing influence in this country—disturbing because he is planting the seed of distrust in the minds of the uninformed and the younger generation. I refer to Mr. Young, chairman of the board of the C. & O. Mr. Young, of course, is entitled to his views, but I submit that, in expressing his views, he should more nearly adhere to the facts. . . . I gather that Mr. Young does not altogether agree with our foreign policy; he likewise disagrees with decisions of the United States Supreme Court, disagrees with decisions of the Interstate Commerce Commission, and has a great deal of criticism with respect to the influence of the big insurance companies in protecting their investments in some of our more important railroads. . . .

Sees Good in Agreements—"Mr. Young has a perfect right to criticise. Constructive criticism is always a good thing, but when Mr. Young states, as he did . . . some few days ago, that a number of railroads presidents were under indictment and might be convicted, he is rather stepping off a deep end. I happen to be one of the railroad presidents indicted—I still don't know what for, because certainly no railroad is doing anything that did not have the approval of the Interstate Commerce Commission. If there were agreements among railroads as to schedules, and there may have been, it was entirely proper and should be continued, not only in the interest of the railroads but of the shipping public. It is in the interest of the shipping

public that these railroads be maintained in good condition. Mr. Young occupies in the railroad field about the same status that Henry Wallace does in the political field. They are both undermining the confidence of the uninformed and the younger generation in our form of government and in free enterprise. . . . The tearing down of confidence in the railroads and railroad men by Mr. Young is not adding anything to the general good of the country."

B. & M. Permits Check Payment for Commutation Tickets

Boston & Maine commuters who purchase 46- or 60-ride monthly tickets may now pay for them by check, it has been announced by C. F. Palmer, passenger traffic manager. "In the hope that we may make it convenient for our commuting patrons," Mr. Palmer said, "our ticket agents will hereafter accept personal or company checks . . . or, if a patron prefers, we will send monthly tickets by mail. Order blanks for ordering monthly tickets by mail are now available at ticket offices. Those proffering checks must be known to the agent or present suitable identification."

T. & P. Backs Industry Survey

A survey of the industrial assets and potentialities of western Texas, from Fort Worth to El Paso, has been undertaken under the direction of S. L. Miller, head of the department of transportation of the University of Pittsburgh. The work is sponsored by the Texas & Pacific, in cooperation with the West Texas Chamber of Commerce. In initiating the undertaking, President Vollmer of the T. & P. said: "If there are artificial conditions, including freight rates, retarding the normal and expected development of this great section of Texas lying along and tributary to one railroad, it is our purpose to determine these causes and seek their removal."

Lighter Loading May Hit Car Supply, Kendall Fears

Commenting on commodity loading data reported to the Interstate Commerce Commission which show that 1946 carload traffic averaged 39.6 tons per car, as compared to 39.9 tons in 1945, Warren C. Kendall, chairman of the Car Service Division of the Association of American Railroads, has pointed out that a comparison of 1946 figures for each commodity group with like figures for 1940 "justifies apprehension as to the effect upon the car supply of expiration of General Order ODT 18A, Revised. If 1946 traffic had moved at the 1940 basis of tons per car, approximately 4.5 million more loads would have resulted, requiring employment of more than 200,000 cars each day. Since present car supply conditions would probably provide to some extent an inducement to load cars to capacity, it is improbable that average tonnage would, upon expiration of the order, fall as low as the 1940 level, but a substantial and a serious decline would undoubtedly occur."

In view of the prospect that demand for cars will continue at high levels, while the supply of new cars has yet to match retirements, Mr. Kendall has urged the railroads to consider what they can do to "maintain or improve" the carload tonnage levels now prevailing.

While the loss of 0.3 ton per car for all carload traffic "appears insignificant," he observed, an analysis of the figures by commodity items "indicates that the 1946 tonnage was moved in about 446,000 more cars than would have been required to move the same tonnage at the 1945 level of tons per car for each commodity item." In the manufactures and miscellaneous category the decline was from 30.7 tons in 1945 to 29.6 tons in 1946, which, he pointed out, meant that 415,600 additional carloads were required to handle traffic in that classification because of lighter average loading.

"Comparison of 1946 and 1945 figures for individual commodity items within this group points rather definitely to the conclusion that the loss in tonnage per car was not wholly due to less efficient loading, but rather to conversion of industrial production from heavy goods of war to lighter peacetime products," Mr. Kendall said. "For example, there were heavy losses in automobiles, auto trucks and automobiles and trucks, K. D., requiring some 90,000 additional cars, but there is no evidence that cars were not loaded to capacity. The most serious loss (165,000 cars) was in manufactures and miscellaneous, N. O. S., which classification unfortunately is not susceptible to analysis. The same is true of iron and steel, 5th class, where lighter loading resulted in use of about 45,000 more cars than for comparable tonnage in the previous years."

Noting that each car is loaded about 20 times per year, Mr. Kendall said that the 445,656 additional loads required to handle 1946 tonnage had the effect of withdrawing some 22,300 cars of all types from the available supply each day of the year. "It is not unlikely," he observed, "that without this loss the average daily car shortage during 1946 would have been much less aggravated."

Air Lines More Than a Business, A. T. A. Officer Asserts

Speaking before an air power conference of the American Legion at Omaha, Nebr., on June 23, M. W. Arnold, vice-president, operations and engineering of the Air Transport Association of America, declared that the airlines should be regarded as more than a business because "they and the system of federal airways and public airports which enable them to maintain their high standards are a reflection of our need for instant mobility in case of another emergency."

Though the cost of establishing and maintaining the airways and public airports and air mail system has been substantial, Mr. Arnold said that, in return for the cost, the nation has "received an air mail system which is now returning a profit, a fast system of transport for passengers and property and a domestic and international

network of air lanes with adequate facilities and personnel to give the armed forces instant support in case of emergency."

Revelle W. Brown Honored by Pennsylvania University

At the graduation exercise on June 18 at the University of Pennsylvania an honorary degree of Doctor of Laws was conferred on Revelle W. Brown, president of the Reading. The citation read as follows:

"Revelle Wilson Brown, railroad official, after graduation from high school you began your railroad career as a laborer. Today you are the president of one of the great railroads which carries the people

Judge Igoe, as was asked in the petition. He predicted, however, that Judge Igoe would ratify the senior bondholders' appointment of four reorganization managers, which the later had previously refused to do and which had precipitated the removal petition.

At the same time, Judge Evans criticized the handling of the case in two respects: i. e., undue delay and actions of Aaron Colnon, co-trustee of the bankrupt property, whose removal is also desired by the senior bondholders. In this connection, Judge Evans stated: "Trustee Colnon has said and done things which would possibly justify conclusion that he has been bent upon delaying the execution of the reorganization plan, changing it to the interest of the

operating unions concerning the latter's demand for 20 cents an hour wage increase (reported in last week's *Railway Age*, page 1274). It is estimated that this demand would increase the railroads' transportation costs \$568,000,000 annually.

The operating unions, said to represent 350,000 engineers, firemen, conductors, trainmen and switchmen, are asking changes in rules that would add another billion dollars annually to railroad costs, according to D. P. Loomis, executive director of the Association of Western Railways. Mr. Loomis, who also heads one of the three carrier conference committees negotiating the non-operating unions' demands, said the proposed rule changes "constitute the biggest featherbed threat that ever menaced private industry. Twenty-eight of the proposed rules would compel the railroads to pay more wages for the same or less work," he stated. "Seven would require additional and unnecessary men to do the same work. Three would interfere with work assignments and the appointment of supervisory personnel. The others relate to various phases of railway operation."

Declaring that while no direct wage increases are included in the demands of the operating unions, Mr. Loomis asserted that some of the rules would "pyramid increase upon increase for certain employees. Most of these already are in top wage brackets."

He said the most costly of the 44 rule demands was that which proposes to limit the length of freight trains to 70 cars and passenger trains to 14 cars. Another change, he said, would require additional train and engine crews on Diesel-powered trains—one full crew for every power unit in the locomotive. Therefore, a freight train hauled by a four-unit Diesel would have to carry four engineers, four firemen, four conductors, and at least eight brakemen, or a total of 20 men instead of five, he asserted.

Mr. Loomis said the railroads would seek relief from 25 rules now effective, which they consider "out-dated because they impair railroad efficiency and add unnecessarily to transportation costs."



Recipients of the honorary degree of Doctor of Laws at exercises at the University of Pennsylvania were (reading left to right) Gen. Dwight D. Eisenhower; John A. Duff, governor of Pennsylvania; and Revelle W. Brown, president of the Reading. Dr. George W. McClelland, the university's president, is at the extreme left

and the commerce of the commonwealth of Pennsylvania and employs thousands of its citizens. You are recognized as an authority in labor relations and for your understanding of the workingman with whom you have shared a common experience. Knowledge is acquired in the laboratory and in the clinic, as well as in the library and in the study. The railroad has been your laboratory and your clinic."

Refuses to Oust Judge Igoe from Rock Island Case

Federal Judge Michael L. Igoe of Chicago will remain in charge of the Chicago, Rock Island & Pacific reorganization proceedings, according to a decision handed down last week by Senior Federal Judge Evan A. Evans of the U. S. circuit court of appeals at Chicago. The court denied a petition of the road's senior bondholders, who had asked for Judge Igoe's removal, charging delays in the reorganization case as the reasons therefor (see *Railway Age* of June 14, page 1215). In his opinion, Judge Evans held that he was without authority to appoint a circuit judge to replace

junior creditors to prolong the period of reorganization.

Judge Evans also wrote in his opinion: "Fourteen years is, in the writer's opinion, too long for any receivership of bankruptcy proceedings, longer than necessary to reorganize any debtor." He expressed his belief, however, that Judge Igoe is not a party in the delay.

On June 17 holders of convertible bonds nominated Roy D. Keehn, a Chicago attorney, as a fifth reorganization manager of the road, to serve with the four managers already nominated by the senior bondholders. The district court, which itself has the power to appoint one of the five managers, has not ratified the nominations.

Ops Present Demands; Non-ops, RRs Continue Wage Talks

On June 20 the five railroad operating unions served the nation's carriers with demands for changes in some 44 so-called working rules—the issue which last year precipitated the nation-wide railroad strike. At the same time, negotiations continued behind closed doors at Chicago between railroad representatives and the 17 non-

Tornado Damages U. P. Station

A tornado struck the railroad station of the Union Pacific at Julesburg, Colo., recently, lifting the roof from the passenger side of the building and completely demolishing the freight portion of the station. The damages were estimated at \$20,000. No injuries were reported.

Faricy Hails Senate Approval of Anti-Trust Relief Bill

Passage by the Senate on June 18 of an amended version of S. 110 "represents the considered judgment of the Senate upon the merits of the bill, and reflects the small credence given to sensational, intemperate and unfounded attacks upon the carriers, the shippers and the public authorities who endorsed the principle that transportation regulation should be continued under the Interstate Commerce Act," William T. Faricy, president of the Association of American Railroads, declared in a June 19 statement.

The bill, which is now being considered by the House committee on interstate and

foreign commerce, would stay the operation of the anti-trust laws with respect to carrier rate-making and other joint procedures approved by the Interstate Commerce Commission.

U. P. Distributes Packaging Tips

The Union Pacific has published a four-page pamphlet of tips on better packaging which it has distributed not only to traffic managers of industrial concerns throughout the United States but also to its own employees. An attractive three-color publication, this pamphlet is headed "If it's worth shipping it's worth packaging right!" and contains diagrammatic instructions on the proper construction of shipping cartons and crates, the use of "3-way corners," glue flaps, stitch flaps and cement-coated nails. Response of shippers is said to be indicative of another forward step in the effort to reduce loss and damage claims.

Speed Up "Twin Cities 400"

A 15-min. reduction in the running time of the Chicago & North Western's streamliner, "Twin Cities 400," from Chicago to St. Paul, Minn.-Minneapolis, will go into effect June 29. The train will continue to depart Chicago daily at 2:45 p.m., but will arrive in St. Paul at 9 p.m. instead of 9:15 p.m. and at Minneapolis at 9:30 p.m. instead of 9:45 p.m. There will be no change in the southbound schedule.

Add Two to F. R. P. Council

Two members have been added to the executive council of the Federation for Railway Progress, William C. MacMillen, Jr., president, has announced. The appointees are William N. Leonard, of New Brunswick, N. J., and David A. Hill, of Chicago. Mr. Leonard is chairman of the Department of Economics of Rutgers University and holds a doctorate in economic theory from Columbia University. He served on the War Production Board as industrial analyst of rail transportation. Mr. Hill is a consultant on railroad securities and an investment counselor handling

special assignments for railroad companies as well as for railroad investors.

The two appointments are interim designations until the first annual election next February at which time each of the federation's five membership groups will elect its own representative.

Open House at Steel Plant

The American Steel & Wire Co., a subsidiary of U. S. Steel Corporation, opened its gates to the public for the first time on June 9 at its Waukegan (Ill.) plant and on June 11 at Joliet. More than 6,000 visitors and members of employees' families were escorted through the Waukegan plant, where they saw the inside story of wire, its origin and its finished products.

G. N. Reserves Diner Space

A dinner-by-reservation plan which eliminates the necessity for passengers to stand in line while waiting for seats in dining cars has been inaugurated by the Great Northern on its "Empire Builders," the road has announced. The plan (applicable only to the evening meal) provides five one-hr. dinner periods beginning at 5 p.m. and lasting until 9:15 p.m. Reservation cards are given both Pullman and coach passengers, who may have their choice of dinner hours. A. W. Deleen, G. N. dining car superintendent, said the summer travel season would afford a thorough testing of the plan.

that he pay the fine within 10 days and maintain good behavior.

Freight Car Loadings

Revenue car loading figures for the week ended June 21 were not available when this issue went to press.

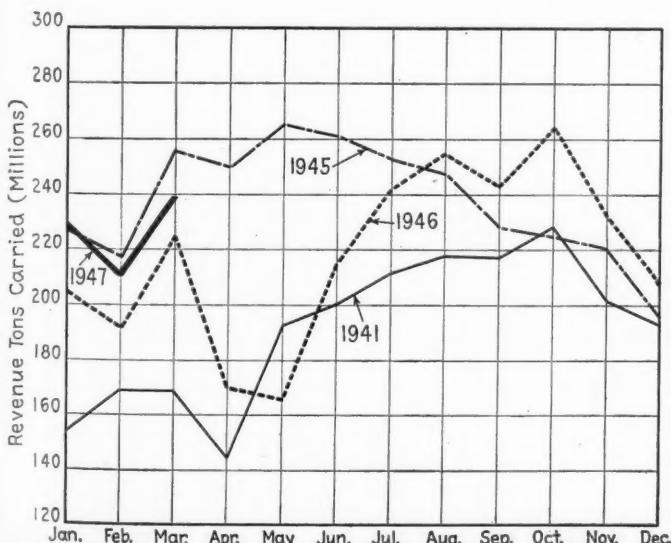
Loadings of revenue freight for the week ended June 14 totaled 895,292 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

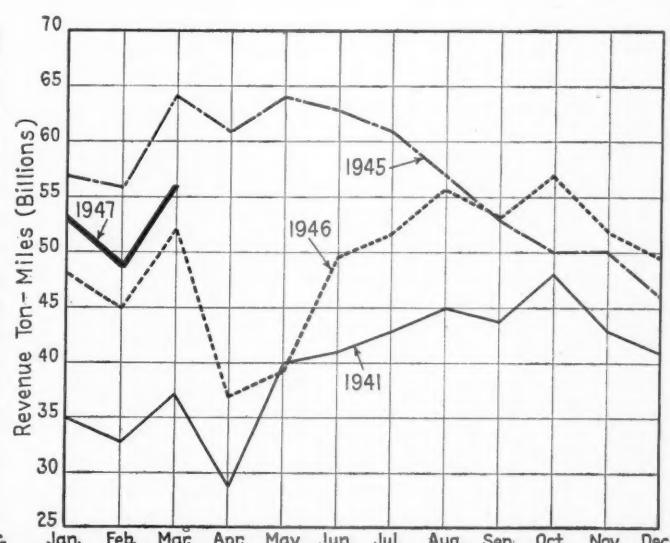
District	For the Week Ended Saturday, June 14		
	1947	1946	1945
Eastern	162,014	157,597	155,417
Allegheny	192,278	177,443	189,299
Pocahontas	74,424	74,253	59,660
Southern	135,079	137,420	128,915
Northwestern	131,402	122,564	134,506
Central Western	131,358	130,487	134,113
Southwestern	68,737	68,154	71,412
Total Western Districts	331,497	321,205	340,031
Total All Roads	895,292	867,918	873,322
Commodities:			
Grain and grain products	48,811	45,538	52,921
Livestock	12,985	13,697	14,683
Coal	191,680	187,287	173,094
Coke	13,361	11,307	13,105
Forest products	47,355	47,822	45,376
Ore	78,908	66,375	74,824
Merchandises l.c.l.	115,535	125,821	106,465
Miscellaneous	386,657	370,071	392,854
June 14	895,292	867,918	873,322
June 7	900,747	830,128	884,658
May 31	830,383	626,885	837,886
May 24	890,605	571,473	882,753
May 17	888,208	688,210	868,914
Cumulative total, 24 weeks	19,923,123	17,277,895	19,507,896

In Canada.—Car loadings for the week ended June 14 totaled 78,109 cars, as compared to 79,165 cars for the previous week and 69,208 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
June 14, 1947	78,109	36,525
June 15, 1946	69,208	33,345
Cumulative totals for Canada:		
June 14, 1947	1,711,149	890,661
June 15, 1946	1,591,339	811,192



Revenue Tons and Revenue Ton-Miles—1947 Compared with 1941, 1945 and 1946



With the Government Agencies

Lemke Bill Rapped by Faricy, Kendall

Say measure would be a step toward bureaucracy and government operation

Making his first appearance before a congressional committee since assuming the presidency of the Association of American Railroads on April 1, William T. Faricy, testifying last week before a subcommittee of the House committee on interstate and foreign commerce, declared that approval of H. R. 3140 would amount to "renunciation of private operation of the railroads."

As noted in *Railway Age* of April 26, page 866, the bill, introduced by Representative Lemke, Republican of North Dakota, would amend the Interstate Commerce Act by providing for what it terms a "fair and impartial regulation of car service." The bill also proposes to create what would be a somewhat autonomous Bureau of Service "within the Interstate Commerce Commission" with the duty of that bureau, headed by a \$10,000-a-year director, to administer the car service provisions of the act and "enforce just and reasonable car service."

Asserting that the railroads are handling the greatest peacetime traffic on record and that any change in the present method of freight car distribution would be unjustified, Mr. Faricy said that it would be a "catastrophe" should Congress "be prompted by the exigencies of a temporary situation to adopt any such measure as that proposed in the Lemke bill." The bill, he added, would substitute "bureau initiative and responsibility" for "railroad initiative and responsibility" in the matter of car supply and distribution. According to Mr. Faricy, such a bureau would establish within the I. C. C. a "budding bureaucracy at variance with our traditional concept of private operation of the railroads."

Possible Bases—"It would appear obvious," Mr. Faricy continued, "that the drastic step proposed by the Lemke bill could be justified only upon one of three premises: First, that the railroads in private operation have broken down, or are breaking down; or second, that the railroad organization which deals with the matter of car supply and distribution is the subject of domination in the interest of some railroads or sections against the interests of other railroads or other sections; or third, that the present system in fact operates to create discriminations as between shippers or sections of the country. Not one of these things is true.

"During World War II, the railroads moved 90 per cent of all war freight and 97 per cent of all organized military travel, and did it successfully. So far this year, the railroads have moved more carloads of freight than they did for those same months even in wartime, and today they are handling more tons of freight more miles than ever before in peacetime. That is not the record of an industry in a state of collapse, or near-collapse. It is the record of a vigorous industry, manned and operated by the same personnel who made a war record universally acclaimed and who, since the war, have neither forgotten how to railroad nor lost their interest in the job. The railroads have not broken down; they are not going to break down."

Stating that the extent of the freight car shortage "has been greatly exaggerated," Mr. Faricy said that such a shortage as does exist is "simply the inevitable consequence of the impact of a phenomenal postwar demand for rail transportation upon a war-depleted car supply."

"It appears not to astound anyone to be told that he must wait for the delivery of a new automobile, but the necessity for occasional patience in awaiting the availability of a freight car is too frequently pictured in the light of outrage.

Remedy for Car Shortage—"The car shortage is only a transitory phase of the return from the conditions of war to the conditions of peace. The sure and lasting remedy for the shortage is the acquisition of more cars. The railroads have received something more than 60,000 new cars since the war closed, but that is not enough. They now have on order over 100,000 additional new cars with approximately 25,000 more in the process of being ordered and the railroads hope that the car builders will be able to bring their output up to a rate of 10,000 cars a month before the summer ends."

Mr. Faricy described as "absolutely false" the "idea" being exploited in certain quarters that the A. A. R. or its Car Service Division is dominated in the supposed interest of the eastern railroads and industrial interests to the detriment of the West. "With all the emphasis at my command," he said, "I say to you gentlemen that any charge or insinuation of eastern domination or Wall Street domination or any other kind of domination of the association, or its Car Service Division, or of me, except as expressed in the majority vote of our board of directors, of which I am one, is without the slightest foundation in fact."

"The association has neither the power nor the desire to discriminate against any of its members, or any section of the country, or any shipper whatever. The administration of car distribution through

(Continued on page 1324)

RRs and Unions Heard on Crosser Changes

Senate, House groups launch hearings on measures to repeal or amend act

Legislation designed to strike from the Railroad Unemployment Insurance Act the sickness and maternity benefits added last year by the Crosser Act and to place the unemployment-insurance tax on a sliding-scale basis which would immediately reduce this levy—paid entirely by the railroads—from 3 per cent to $\frac{1}{2}$ per cent of taxable payroll was the subject of hearings conducted this week before subcommittees of the Senate committee on labor and public welfare and the House committee on interstate and foreign commerce. The bills, which are identical in text, are S.670, introduced by Senator Hawkes, Republican of New Jersey (see *Railway Age* of March 1, page 470), and H.R. 3150, sponsored by Representative Howell, Republican of Illinois. The latter measure was outlined in *Railway Age* of April 26, page 866.

Dr. J. H. Parmelee, vice-president of the Association of American Railroads and director of its Bureau of Railway Economics, was the principal witness for the railroads before the House subcommittee. Following a detailed summary of railroad earnings during the past several years, Dr. Parmelee asserted that, in so far as the future is concerned, the railroad industry will find it "exceedingly difficult" to average a 3 per cent return on its investment for each of the next five years unless it is authorized "substantial rate increases." He said that it is "generally agreed" that a 6 per cent return on investment is a "reasonable expectation."

Paramelee's Analysis—Describing the future prospects of the railroads as "unfavorable," Dr. Parmelee added that the Crosser Act at the beginning of 1947 levied an additional burden on railroad finances in the "shape of an increase" of $\frac{1}{4}$ per cent in the payroll tax for retirement purposes. "This $\frac{1}{4}$ per cent is equivalent to an increase in 1947 of \$90 million in that tax," he added. "Not only that, but the act further provides that the tax shall increase by another quarter per cent in 1949, and another quarter in 1952, thus adding still another \$20 million to railroad operating costs. It seems to us, in the light of these prospects, and in line with the general desire of Congress to reduce rather than increase tax burdens, that the railroad payroll tax rate should be reduced, rather than increased, at the very time when the industry can least afford an increase."

The railroads, according to Dr. Parmelee,

"thought and still think" that the Crosser amendments "created a monstrosity, a system expensive and unworkable in many of its features, inequitable to the railroads and highly discriminatory." At the same time, he charged that the payroll tax rates of the railroads is "three times as great" as the effective rate in other industries, adding that such "discriminations" against the railroad industry should be eliminated and the "disparities wiped out as far as possible."

"This can be done by reducing the railroad unemployment insurance rate to levels more nearly consonant with those levied on employers in industry," he stated. "These other employers include operators of trucks, buses, water carriers and air lines, all competing strongly with the railroads for traffic, and assisted in such competition by the fact that their payroll tax rates are less than one-third as great as those the railroads must meet. Our national transportation policy, as laid down by Congress in 1940, calls for equal treatment of the several agencies of transport. We submit that these tax rates on railroads, contrasted with the corresponding tax rates on their competitors, is wholly unequal treatment, and should be remedied."

Excessive Reserve—J. Carter Fort, vice-president and general counsel of the A. A. R., noting that the railroad unemployment reserve fund now amounts to approximately \$850 million, said that "if there is any reason why the railroads should be deprived of the use of more than \$800 million of their own money to maintain this monstrous reserve, no one has ever suggested what it is." "The effect of the graduated scale of taxes would be to reduce the swollen reserve, over the years, to reasonable proportions, without in any way endangering the soundness of the unemployment system," he continued, adding that H.R.3150 should be enacted to avoid "flagrant discrimination and grave injustice."

J. M. Soubey, general solicitor of the A. A. R., who also was the principal railroad witness before the Senate group, said that unless the taxes which are now being paid by the railroads for the support of social security can be passed on to their customers, they will inevitably have an adverse effect in the long run on the security of railroad employees "because of their inevitable adverse effect upon the ability of the railroads to provide employment."

"To the extent that the railroads are able to pass the taxes on to their customers through higher transportation charges, it simply means that the favoritism which is shown railroad workers in the matter of social security benefits discriminates not only against workers in other industries, but against practically all citizens of the country," he stated. "That is because, to the extent that taxes levied on the railroads for the support of these preferential benefits to their employees are reflected in higher railroad transportation charges, they will ultimately be reflected in turn in higher prices of all the things transported. Thus, a large part of the cost of this preferential treatment of the railroad employees will ultimately have to be borne by the very people against whom it discriminates."

Sliding Scale Adequate—Sidney Alderman, general counsel of the Southern, asserted that the fact that the reserve fund now totals approximately \$850 million is "complete demonstration that the present 3 per cent tax rate is grossly excessive for the payment of the unemployment benefits contemplated by the original act, even as increased by the Crosser Act."

"The sliding scale would be complete protection to the account," Mr. Alderman continued. "If it ever should fall as low as a dollar less than \$150 million, the maximum tax rate of 3 per cent would be restored and the account would again start to build up as it has in the past. But nothing could be fairer than to grant the railroads a measure of tax relief by reducing the rate as the account rises above that figure. I can see no excuse whatsoever for continuing in effect the 3 per cent present tax rate when this account is approaching the astounding figure of \$1 billion, making its own complete demonstration of the gross excessiveness of that tax rate."

Among other witnesses appearing in support of the bill, J. P. Nye, secretary-treasurer of the American Short Line Railroad Association, observed that the short lines had opposed the Crosser bill because (1) railroad employees as a class were preferred; (2) short line members could not financially afford to pay the increased costs; (3) some of the measure's provisions were of doubtful constitutional validity; and (4) enactment of the bill would necessarily reduce the amount of postwar employment which could be supported by the railroads. He also observed that the short lines had a net deficit of over \$1 million in 1945 and "excess of that" in 1946.

R. L. E. A. Contentions—Principal witness for the opponents to the Howell bill, L. P. Schoene, general counsel of the Railway Labor Executives Association, asserted that the sickness and maternity benefits provided by the Crosser Act are not as yet in effect and therefore have not been given a "fair trial." At the same time, he declared, the outcome of the current wage negotiations between the railroads and unions "depends much" upon the action taken by Congress with respect to S.670 and H.R.3150.

Mr. Schoene also asserted that many railroad officers were "propagandizing" their employees with "false statements" regarding the effect of the Crosser Act. He particularly referred to an article, allegedly written by R. B. White, president of the B. & O., which, Mr. Schoene said, appeared in a B. & O. employees' magazine and later was "picked up" for publication in employee magazines of other roads. He alleged that similar articles of an erroneous nature with respect to the Crosser Act also had appeared in *Railway Age*, *Traffic World* and in employee publications of several roads, including the Louisville & Nashville, Denver & Rio Grande Western, Southern Pacific, Chicago, Milwaukee, St. Paul & Pacific and Pennsylvania. At the same time, he added that numerous roads distributed circulars on pay day which, he insisted, contained many untruths concerning the Crosser Act.

Harry See, national legislative representative of the Brotherhood of Railroad

Trainmen, said that many persons connected with the B. of R. T.'s insurance department feel that the payment of benefits will stimulate interest in health and accident insurance. He added that the act will make more people "insurance-minded" and lead them to buy from insurance companies additional benefits to be added to those due them under the law.

Among others who also appeared before the House subcommittee in opposition to H.R.3150 were D. B. Schreiber and Walter Matscheck, associate general counsel and director of research, respectively, of the Railroad Retirement Board. In addition to Mr. Soubey, others who appeared before the Senate subcommittee included Dewey Dorsett, manager, National Association of Casualty and Surety Executives; and Robert Hogg, executive vice-president, American Life Convention, Chicago, Ill.

As noted in *Railway Age* of May 24, page 1093, the House committee originally planned hearings on several amendments to the Crosser Act, including H.R.3150, on May 20, but was thwarted when Representative Crosser, Democrat of Illinois, insisted upon a "vote of consideration" to determine whether the hearings should proceed at that time. The committee, by a vote of 12 to 6, upheld the motion of Mr. Crosser, who had asserted that the committee had not had enough time to consider the bills which had been introduced.

I. C. C. Report on Signaling and Train Control—Correction

Commissioner Mitchell filed the separate concurring opinion in connection with the Interstate Commerce Commission's report which ordered railroads to install automatic or manual block signal systems on lines over which any passenger train is operated 60 m.p.h. or more or any freight train is operated 50 m.p.h. or more, and automatic train-stop or train-control systems or automatic cab-signal systems on lines over which any train is operated at a speed of 80 m.p.h. or more. It was stated erroneously in the *Railway Age* of June 21, page 1264, that the separate expression had been filed by Commissioner Miller.

Two RR Debt Adjustment Bills Passed by House

The Senate received this week two House-approved bills, H. R. 2298, the so-called Mahaffie bill, which provides for adjustment of railroad financial structures without recourse to bankruptcy proceedings, and H. R. 3861, which allows a successor railroad corporation the benefits of certain tax credit adjustments affecting a predecessor corporation. The former measure was introduced by Representative Wolverton, Republican of New Jersey, while H. R. 3861 was sponsored by Representative Jenkins, Republican of Ohio.

As noted in *Railway Age* of May 24, page 1090, the Mahaffie bill, passed by a voice vote, would amend the Interstate Commerce Act by providing a procedure for those railroads, not in bankruptcy or receivership, but which are experiencing temporary difficulty in meeting maturing

obligations and charges, to modify such obligations upon assent of the holders of 75 per cent of the affected securities, subject to the approval by the Interstate Commerce Commission. Such adjustments, however, would not be subject to court proceedings. The measure was endorsed by the House committee on interstate and foreign commerce following extensive hearings earlier this year.

According to Commissioner Mahaffie of the Interstate Commerce Commission, the bill will provide a "simple and inexpensive" method whereby carriers, in cooperation with a substantial majority of their creditors, can effect alterations of their capital structure or debt maturities without being subjected to proceedings under section 77 of the Bankruptcy Act. The bill contains many of the provisions included in the so-called Wheeler-Reed bill, which was pocket-vetoed last year by President Truman.

According to the House committee on ways and means, H. R. 3861 will give seven reorganized roads—the Wabash; Chicago & Eastern Illinois; Akron, Canton & Youngstown; Gulf, Mobile & Ohio; Minneapolis & St. Louis; Minneapolis, St. Paul & Sault Ste. Marie; and Spokane International—tax credits of approximately \$7,500,000.

Mr. Jenkins said that the purpose of the bill is to equalize the taxation of reorganized railroads by removing an existing discrimination against certain carriers. "This discrimination," he said in part, "arises out of the fact that under the laws of some states railroads emerging from bankruptcy or receivership are not able to use their old charters in effecting their reorganization. This causes them to be treated for federal tax purposes as a different taxpayer from the old company and results in their being denied the benefit of the carryover provisions."

Discussion of the Jenkins bill on the House floor was highlighted by the remarks of Representative Forand, Democrat of Rhode Island. Stating that "when I smell smoke I look for fire," Mr. Forand said that "the railroad lobby has been extremely busy this session, and within the last three or four days this is the third relief bill for the railroads that has come to us. Were it not for the fact that I realize the majority could very well . . . pass the bill over my objection, I definitely would fight to the end on it."

Anti-Trust Relief Bills Get House Group Hearings

The House committee on interstate and foreign commerce began hearings June 25 on S.110 and H.R.221, the related bills introduced by Senator Reed, Republican of Kansas, and Representative Bulwinkle, Democrat of North Carolina, respectively, to stay the operation of the anti-trust laws with respect to carrier rate-making procedures and other joint actions approved by the Interstate Commerce Commission.

As noted in *Railway Age* of June 21, page 1252, the Senate on June 18 passed an amended version of Senator Reed's measure. An anti-trust relief bill, introduced by Representative Bulwinkle in the last session of Congress, passed the House by a

decisive margin, but after being favorably reported from the Senate committee it was allowed to die on the Senate floor.

Dr. Parmelee Asserts Seaway Would "Drain" Taxpayers

With rebuttal testimony by Dr. Julius H. Parmelee, vice-president of the Association of American Railroads and director of its Bureau of Railway Economics, a subcommittee of the Senate committee on foreign relations last week concluded hearings on Senate Joint Resolution 111, which would approve the United States-Canada agreement for the development and construction of a "self-supporting" and "self-liquidating" St. Lawrence seaway and power project.

Dr. Parmelee asserted that on the basis of the most "optimistic estimates" as to the cost of construction and potential outlook, the waterway project, if constructed, would prove to be a "constant drain" on the taxpayers of the U. S. and Canada. He contended that the project could not possibly be placed on a self-liquidating basis under the provisions of the resolution, which would fix the maximum toll at \$1.25 per ton.

Dr. Parmelee testified that if the seaway handled 20 million tons a year at tolls ranging from 50 cents to \$1.25, interest, amortization, operating and maintenance costs would amount to \$22,847,978 annually—of which \$17,461,178 would be borne by the U. S.—as compared to yearly tolls of \$12,940,000 for both the U. S. and Canada combined. He said that the U. S. might reasonably expect to receive only \$6,470,000 in tolls, if the total receipts are to be divided evenly between the two countries. "Whatever the basis of the division of the toll revenue between the United States and Canada, there clearly would not be enough revenue to go around, and one or the other country, or both, would be called upon to make up a heavy deficiency," he said.

According to the A.A.R. officer, the construction cost to the U. S. of the navigation project, on the basis of figures submitted by the United States Army Corps of Engineers, would be not less than \$374,854,000, excluding approximately \$31 million already expended while the cost to Canada would total \$96 million, exclusive of the latter's expenditures to date.

"If the cost of expenditures to date is included," Dr. Parmelee continued, "the figures for the cost of the navigation project alone become \$406,596,000 for the United States and \$228,672,000 for Canada, or a total of \$635,268,000."

"I think Congress must face squarely the fact that approval of the 1941 agreement with Canada through the passage of this resolution involves a gift to Canada of one-half the difference between the United States and the Canadian cost of the sum of \$139,427,000 or \$88,962,000, depending on whether you exclude or include the item of expenditures to date.

"It seems to me that everything that has been presented at this hearing, both by proponents and opponents, leads to the inescapable conclusion that a complete and thorough investigation must be made of this whole subject before it is possible to

determine the feasibility of making the navigation project self-liquidating. With the record in such a state on the question of making the project self-liquidating, such an investigation should certainly be made before the construction of the project is authorized."

Lemke Bill Rapped by Faricy, Kendall

(Continued from page 1322)

the Car Service Division is untainted with favoritism in any form and is administered solely with the view of getting the best obtainable distribution in the interest of the commerce of the country as a whole."

Form of Government Operation — Asserting that the I. C. C. has not hesitated to exercise its temporary emergency power to suspend without hearing the operation of any rules and practices with respect to car service, and issue directions which it believes will "best promote the service in the interest of the public and the commerce of the people," Mr. Faricy said that intervention by the I. C. C. in the matter of car handling and distribution is a "far cry from the long term change in fundamental policy embodied in the Lemke bill."

"That bill is not directed," Mr. Faricy concluded, "to the current shortage or any emergency condition. On the contrary, it would substitute for private management a bureau of the commission as the permanent operating agency responsible for distribution and movement by the railroads of their own car supply. It would be a direct and major step in the direction of outright government operation of the railroads. The country saw enough of government operation of railroads in World War I."

Among others who voiced opposition to the Lemke measure—hearings on which have been suspended until further notice—included Warren C. Kendall, chairman of the Car Service Division; J. M. Symes, vice-president, operation, of the Pennsylvania; P. J. Lynch, vice-president, operation, of the Union Pacific; J. M. Hood, president of the American Short Line Railroad Association; E. S. Gubernator, representing the Atlantic States Shippers' Advisory Board; Roland Rice, general counsel, American Trucking Associations, Inc.; and Vance N. Kirby, Treasury Department.

According to Mr. Kendall "the only lasting cure for the freight car shortage is an increase in the supply of freight cars." He denied that there has been discrimination between any parts of the country in the matter of distribution of freight cars adding that the existing system of car supply is efficient, flexible and economical.

Mr. Kendall contended that western car loadings are keeping pace with loadings in other sections and that more freight is being loaded on western railroads than ever before. In the first 23 weeks of this year, he said, western loadings were more than 7,371,000 cars, over 844,000 more cars than were loaded in the corresponding

weeks of 1946 and more than were loaded in the peak war years of 1944 and 1945.

Mr. Kendall said that there has been "overall equity and balance" in car supply and distribution, adding that "no improvement would have been brought about had a system of bureaucratic administration and control been superimposed upon the existing mechanism of car supply and distribution. With the acquisition of an additional supply of cars, we may look forward to the end of car shortage difficulties."

The Ownership Question—The fact that eastern railroads have on their lines more than their ownership of box cars and western railroads have more than their ownership of open-top cars is in "no degree due to discrimination in distribution of either type of car, but rather to the way commerce moves in this country," the C. S. D. chairman continued.

"Ordinarily and properly, those railroads on which there is a heavy origination of certain kinds of traffic have a relatively large ownership of cars suitable for that traffic. These cars are not intended to be kept at home. The very purpose of owning them is to have them loaded and shipped to points of consumption, commonly involving movement on other railroads. This is true of box cars of western ownership and of open-top cars of eastern ownership. The basis of the continental commerce of the United States is that these cars shall move freely from railroad to railroad, carrying the products originating in one section to consumers in other sections.

"To attempt in a time of car shortage to keep 100 per cent of ownership of each type of freight car on the originating and owning line at all times would result in intolerable congestion and delay to traffic, and unnecessarily add hundreds of millions of dollars to capital expenditure of railroads to own and maintain unneeded equipment, as well as add great expense in the cross-hauling of loaded and empty cars. Furthermore, it is the history of railroad car ownership that since the beginning of interchange of loaded cars, one road with another, there has never been a time when each railroad had on line 100 per cent of its ownership by types of cars. Such a situation would not be practical or economical or in the interests of good transportation policy. Whatever may be said to the contrary, it is wholly impractical to distribute car supply solely with relation to individual railroad ownership without a disregard to the interests of the shippers and disastrous results to the commerce of the country."

According to Mr. Lynch, enactment of the bill would unnecessarily increase the expenses of the federal government with consequent adverse effect on taxpayers and would not result in increased availability of freight cars. He said that the bill would substitute, in the place of experienced railroad personnel, a federal bureau "staffed with untrained and inexperienced personnel to handle freight car distribution." "The scarcity of freight car equipment at this time," he added, "is not the result of improper or maladministration, nor is it a condition that can be corrected or improved by the substitution of a govern-

ment bureau for one operated by private enterprise through the years."

Mr. Hood said that because of the multitude of detail and ever-changing conditions, it would be impossible to set up a "bureaucratic administration" from a central point such as Washington, D. C., as the bill proposes. "It is my judgment and, based upon long experience, my conviction that any attempt to embark upon so large an undertaking would result in commercial chaos within a very few weeks," he added.

Symes Sees Chaos—The Lemke proposal, said Mr. Symes, is "unsound, unnecessary and not in the public interest," and, if enacted into law, would bring "chaos and a complete breakdown in our car supply and distribution." He contended approval of H. R. 3140 would mark the "beginning of the end" of private operation of the railroads. At the same time, he added that the C. S. D., through support rendered by the railroads, shippers and government agencies, plus earliest possible delivery of cars now on order and necessary repairs to existing cars, will overcome the car shortage in the "quickest possible time." "I will, however," he added, "not make that prediction if an attempt is made to legislate the railroads out of a car shortage. It simply won't work."

Mr. Symes testified the charges made at hearings before the so-called "western states caucus" that the A. A. R., the eastern railroads and their allied shipper interests were discriminating against the West, in connection with car handling and car distribution, "are merely charges of the uninformed in the overall railroad situation." He said his only criticism of the A. A. R. has been directed to its "over-enthusiasms" to help the West and the expense it has put on the Pennsylvania in connection with the inequitable movement of empty box and refrigerator cars from the East to the West. The witness said that the Pennsylvania in 1946 delivered 11,000 more empty box cars to western roads than it received from those roads and from January 1 to June 8, 1947, this excess was 9,792 box cars.

The Pennsylvania, he added, has continuously had serious box car, coal car and gondola shortages, the peak having been reached in March. Based on its total ownership of freight cars on line as of the first of the month, he said that the Pennsylvania has not reached 100 per cent of its total freight cars on line since 1940, and is now under 95 per cent.

Mr. Rice, urging that truckers should be excluded from the provisions of the bill, said that the proposed Bureau of Service would find it impractical to direct distribution of for-hire motor carriers to different areas of the country in order to meet peak seasonal demands. Contending that the problem is one of mass transportation of relatively heavy commodities, such as grain and potatoes, Mr. Rice said that railroad rates on such commodities make it impractical, if not impossible for motor carriers to participate in the movement to any appreciable degree.

Lemke's Views—As Mr. Lemke described his bill at the hearing, it "merely

provides machinery" to supplement and implement present provisions of the Interstate Commerce Act. He would establish by statute a Bureau of Service to replace the present bureau which he said was set up by the I. C. C. and which the commission could abolish at will. The new bureau, he further explained, would be "neither completely autonomous nor completely obedient" to the commission. It would be set up "within the commission" but could act "without resort to the commission."

The proposed regional offices of the new bureau, in Mr. Lemke's opinion, would facilitate the furnishing of "specialized car services." He also stressed the authority the new bureau would have to obtain reports on the car-supply situation, adding that one of the "major difficulties" encountered by the commission has been its inability to secure sufficient information.

With respect to the cost of adopting his proposal, Mr. Lemke said that the new bureau's budget would be less than those of the railway and traffic-movement departments of the Office of Defense Transportation, adding that he preferred passage of the bill to the extension of the O. D. T. Although he stated that the present bureau had been "falling down on the job," Mr. Lemke insisted that he was not criticizing the commission, whose work, he said, has "so increased" that it has "bogged down." He had asserted earlier that the present bureau had become so inactive in the pre-war years that the "death rattle" had begun when the war emergency came, adding that the bureau was revived under the "leadership" of O. D. T. Director J. Monroe Johnson and Deputy Director Homer C. King, former director of the bureau.

Representative Carson, Republican of Ohio, told Mr. Lemke that he had been disturbed by the Car Service Division's re-location orders because there were car shortages in other sections than the West, where, in Mr. Carson's opinion, the picture had been painted worse than it is. Mr. Carson also expressed the view that the only solution was more steel for cars, and he paid tribute to the railroads for the job they have been doing.

"I think," he said, "that if a congressional medal should be given to anyone, it should be given to the railroads for the job they've done with the equipment they had. I personally think the railroads could do a better job if left alone. There are too many regulations."

Says Roads Delayed Orders—Mr. Lemke agreed that the railroads have done a "marvelous" job. He had said as much earlier in his presentation where he coupled the praise with a complaint that the carriers did not order enough freight cars during the war period to use materials allocated by the former War Production Board. It also was Mr. Lemke's opinion that the railroads, in their present condition, would not be able to provide adequate transportation in the event of another war. He said his present interest is to prevent a "complete breakdown" of the country's transportation system.

In response to questions from Representative Lea, Democrat of California, Mr.

Lemke attributed the car shortage to railroad policies of "continually cutting down on car ownership" since the Twenties. He conceded to Mr. Lea that the bill would confer no authority which does not already exist in the I. C. C., but insisted that a "semi-independent" bureau would be able to act more promptly. As to the steel-supply situation, Mr. Lemke said that more might be available for car building "when we stop supplying the whole world."

Representative Gilette, Republican of Pennsylvania and chairman of the subcommittee, said it was the subcommittee's intention to ascertain how much progress has been made with respect to the freight car shortage since the completion of hearings earlier this year before a subcommittee of the Senate committee on interstate and foreign commerce, and to "investigate the outlook" for the future. He said that he hoped the hearing would produce the latest available data on the ownership, distribution and building of freight cars in the country as a whole.

The subcommittee chairman declared that the main purposes of the hearings were to decide (1) whether legislation would be harmful or result in more cars; (2) whether railroads are used as warehouses; (3) the cost of the Lemke bill to the government; (4) whether any other shortages such as elevator and storage space generally, are contributing to the conditions being complained of; and (5) whether the proper function of the I. C. C. in car service matters should be regulatory, rather than managerial. "The anti-trust division of the Department of Justice recently alleged conspiracy on the part of certain car builders throughout the country," he said. "Whether this allegation has any bearing on the problem here under discussion must also be given consideration."

Brotherhoods Still Dislike New Taft-Hartley Law

The Railroad Labor Executives' Association asserted last week that the "Labor-Management Relations Act, 1947"—the so-called Taft-Hartley bill which Congress has approved over President Truman's veto—is, in its present form, "vastly detrimental to the public interest and much more destructive of the fundamental rights of a great body of American citizens than was the original bill passed by the Senate."

The R. L. E. A.'s views were made known during the Senate filibuster last weekend, when Senator Pepper, Democrat of Florida, read a letter addressed to him by A. E. Lyon, executive secretary of the association. As noted in *Railway Age* of June 14, page 1229 matters subject to the Railway Labor Act are generally excluded from the scope of the Taft-Hartley measure.

"We are convinced," Mr. Lyon's letter stated, "that should the bill become law it would bring about a most unfortunate and tragic era of industrial discord and internal dissension in our country. That is something that our country, and indeed the entire world, can ill afford happen at this critical time."

According to Mr. Lyon, the new law

(1) impairs, if not destroys, the efficiency of the National Labor Relations Board; (2) places unfair restrictions on the political activity of unions; (3) jeopardizes vacations with pay, compensation for sick leave, etc.; and (4) makes a union shop an impossibility.

Meanwhile, Representative Robison, Republican of Kentucky, stated during a House discussion of the bill that while the measure does not cover railroad workers, it follows in many respects the railroad adjustment acts which "have proved to be the finest and most satisfactory labor laws ever passed by the Congress."

"The bill eliminates the so-called closed shop," he declared from the House floor. "The railroad adjustment acts that have worked so well do the very same thing. It has been in the law since the Railroad Adjustment Act was first passed more than 25 years ago. In fact, those acts expressly forbid the closed shop and the railroad workers, as a general rule throughout the nation, have themselves opposed the so-called closed shop and the railroad workers have never asked for or been granted the check-off system."

Meanwhile, in the brotherhood weekly, *Labor*, Edward Keating, that publication's editor, was quoted as having told the switchmen's convention at Buffalo, N. Y., that "neither Senator Bob Taft nor any other spokesman for anti-union Big Business can tell us what we may or may not print. . . . However, should he succeed, a prison sentence under those conditions would be a badge of honor."

Congress Considers Prolonging Life of O. D. T.

As this issue of *Railway Age* went to press, the Office of Defense Transportation was scheduled to expire on June 30, but action was pending in Congress on two bills which would extend the life of that agency to January 31, 1948.

As originally introduced by Senator Reed, Republican of Kansas, and Representative Wolverton, Republican of New Jersey, respectively, S. 1297 and H.R. 3152 would have prolonged the powers of President Truman under title III of the Second War Powers Act of 1942 for the purpose of "allocating the use of transportation equipment and facilities by rail carriers to and including June 30, 1948," thereby extending the life of the O. D. T. to that date.

However, the Senate committee on interstate and foreign commerce, in reporting S. 1297 to the Senate, amended the measure by advancing the expiration date to January 31, 1948.

The House committee on interstate and foreign commerce likewise made the same change in H.R. 3152.

The Senate committee's report noted that Congress will have an opportunity to act should there be any need for continuance of the O. D. T. beyond next January 31. It said that it favored the extension of the O. D. T. on the basis of a recommendation submitted by the Interstate Commerce Commission and because of O. D. T. activities to alleviate the freight car shortage, adding that exten-

sion of the O. D. T. also had been recommended by President Truman.

Meanwhile, Colonel J. Monroe Johnson, director of the O. D. T., told the House committee last week that an extension of the President's authority was necessary because "the normal emergency powers of the government over railroads are not adequate to meet all phases of transportation problems arising out of the existing severe shortage in the supply of rail freight cars."

"The allocation authority of the President is broader than the 'car service' authority of the Interstate Commerce Commission both in respect of the transportation facilities and equipment which may be reached and the persons over whom jurisdiction may be exercised," Colonel Johnson said in part. "In meeting rail transportation problems under the allocation power, the President may reach beyond the railroads themselves and adopt measures directly affecting the users of rail transportation where the solution depends upon such type of action."

I. C. C. Denies Request to Merge Per Diem Proceedings

Division 3 of the Interstate Commerce Commission has denied a petition filed by the Secretary of Agriculture to consolidate the No. 29670 proceeding—the investigation instituted by the commission to determine whether a \$2 per diem charge on freight cars, other than tank and refrigerator cars, would promote greater efficiency in the use of equipment during periods of car shortages—with the Nos. 29587 and 29751 proceedings.

The latter, as noted in *Railway Age* of May 31, page 1143, pertains to a complaint filed by six western roads which charged that the prevailing per diem rate of \$1.25 is too low and is a contributing factor to the freight car shortage. The No. 29571 proceeding embodies a complaint filed by the short lines, which, in addition to assailing the present per diem, have asked the commission to reduce it to 95 cents and award reparations retroactive to February 1, 1945.

Hearings on the latter two complaints will be resumed in Washington, D. C., on August 4 before Examiner Rice. As noted in *Railway Age* of June 21, page 1275, Examiners Witters and Smith of the commission, making a proposed report in the No. 29670 proceeding, recommended a \$5 per diem on box cars delayed as a result of "delinquent handling" in terminal or switching districts in excess of five days.

Rate Increase Needed to Assure Vessel Service, Smith Says

The United States Maritime Commission, whose authority to operate vessels in intercoastal and coastwise trade is scheduled to expire June 30, announced last week that it has conditionally approved the applications of nine steamship companies to continue until December 15 essential service on private account under charter contracts with the M. C. Thirty-nine vessels are now being operated for the commis-



The Steam Locomotive

is a high money earner per dollar of investment

Continual advances in the design and construction of the steam locomotive have steadily increased its practical position as a high money earner in relation to its initial cost and expense of maintenance and operation.

This is further emphasized by the ability of modern steam locomotives, such as this Southern Pacific Lima-built 4-8-4, to power heavy passenger or freight trains with equal efficiency.

LIMA LOCOMOTIVE WORKS  INCORPORATED, LIMA, OHIO

sion's account in intercoastal trade and four in Pacific coastwise trade, the announcement said.

Meanwhile Admiral W. W. Smith, chairman of the M. C., in a letter to Chairman Aitchison of the Interstate Commerce Commission, said that while there tentatively appears favorable prospect of service being continued in satisfactory quantity for public need, approval of the applications gives "no warranty or adequate service if the wide gap between rates and current costs cannot rapidly be narrowed by both appropriate and prompt rate relief and better control of costs."

As noted in *Railway Age* of June 21, page 1270, the I. C. C. has under consideration adjustments in water rates and, water-competitive railroad rates.

Bills in Congress

Senator White Republican of Maine, and chairman of the Senate committee on interstate and foreign commerce, has introduced, by request, S. 1484, which would extend the temporary authority of the United States Maritime Commission to operate in coastwise and intercoastal service from June 30 to March 1, 1948. On the House side, Representative Clason, Republican of Massachusetts, has introduced H.R. 3841, which would amend the Railroad Retirement Act of 1937 so as to provide full annuities for persons who complete 30 years of service.

Supply Trade

Rudolph Furrer has been elected vice-president in charge of engineering and research of the **American Car & Foundry Co.**, as reported in the *Railway Age* of June 21. **Morris S. Evans**, former district manager of the Buffalo, N. Y., plant, has been appointed manager of the esti-



Rudolph Furrer

mating division, with headquarters in New York, to assist Mr. Furrer. Mr. Evans worked at the company's Berwick, Pa., plant in 1913 and later, during the summer months while attending college. After graduation he became a full-time employee and later served successively as superin-

tendent, improvement and maintenance, local engineer and assistant to the district manager. He was appointed district manager of the Buffalo plant in 1940.

American Car & Foundry has announced the election of **Howard C. Wick**, secretary, as a director. Mr. Wick has been associated with the company since 1916.

Sterling E. Killebrew has been appointed manager of the railway service division of **Oakite Products, Inc.**, with headquarters in New York, to succeed



Sterling E. Killebrew

Bennett C. Browning, who has resigned to join another organization. Mr. Killebrew was in charge of the southwestern territory of the division for the past four years.

L. R. Boulware, a vice-president of the **General Electric Company**, will assume responsibility for the company's employee relations policy, it has been announced. **E. D. Spicer**, vice-president formerly charged with this responsibility, will henceforth be in charge of the company's manufacturing policy, continuing as a member of the president's staff.

Kennametal Inc., Latrobe, Pa., has announced the appointments of **Walter C. Lavers**, **Joseph F. Liebscher** and **Richard H. Oberholtzer**, formerly application engineers, as representatives, Mr. Lavers and Mr. Liebscher to serve the South Pacific district, with headquarters in Los Angeles, Cal., and Mr. Oberholtzer the Detroit, Mich., area with headquarters in that city. The appointments of **Ralph L. Miller** as representative in the Reading, Pa., area, with headquarters in Philadelphia, Pa.; **Charles Herbert Bodner**, tool engineer and representative in the Los Angeles area, and **John H. Wright** in the New England district, also were announced. The following have been added to the company's staff of application engineers: **Dalton Huston** and **D. C. Cunningham**, both at Detroit, **Hugh A. Pilling** at Philadelphia and, **Frank E. Ryan, Jr.**, with headquarters at Springfield, Mass. Kennametal also has announced the appointment of **Gilbert A. Bunn** as Philadelphia district manager, with headquarters at Philadelphia.

The Allis-Chalmers Manufacturing Company has announced the formation of

a new turbo-power development department in its engineering development division. **R. C. Allen**, formerly manager of the steam turbine department, has been appointed manager and chief engineer of the new department and **W. A. Yost**, formerly assistant manager, succeeds Mr. Allen's former duties.

Robert C. Becherer, supervisor of operations of the Ewart plant malleable foundry of the **Link-Belt Company** since 1945, has been appointed manager of the Ewart plant, at Indianapolis, Ind., and **Warren H. Maxwell**, formerly superintendent of the positive drive shop there, has been appointed general superintendent. **S. L. Houck** has been appointed general superintendent of the plant and **Carl O. Schopp**, superintendent of the plant foundry.

The **Okonite Company** has announced the opening of a new sales office at 626 Broadway, Cincinnati, Ohio. **S. W. Pollock**, in charge of the new office, will handle sales in southern Ohio.

Joseph M. Weldon, formerly in charge of the aeronautical division of the alloys sales department of the **International Nickel Company**, has been appointed assistant to vice-president **H. J. French**.

Keith A. Regel, formerly executive assistant to the president of the **Automatic Electric Sales Corporation**, has been appointed manager of facsimile sales for the firm.

Charles E. Barnes, general sales manager of the **Griffin Wheel Company** at Chicago, has been elected vice-president in charge of sales, succeeding **Carter P. Whitcomb**, who will retire at his own request on June 30.

John F. MacEnulty, chairman of the board of directors of the **Pressed Steel Car Company** has retired, but will continue to be available to the company on a consultative basis.



John F. MacEnulty

Mr. MacEnulty joined Pressed Steel Car shortly after its organization in January, 1899. He first worked as car inspector in the Allegheny plant and steadily advanced through various departments until 1916 when he became a vice-president. He was elected a director in 1922, vice-

MORE POWER FROM THE BOILER

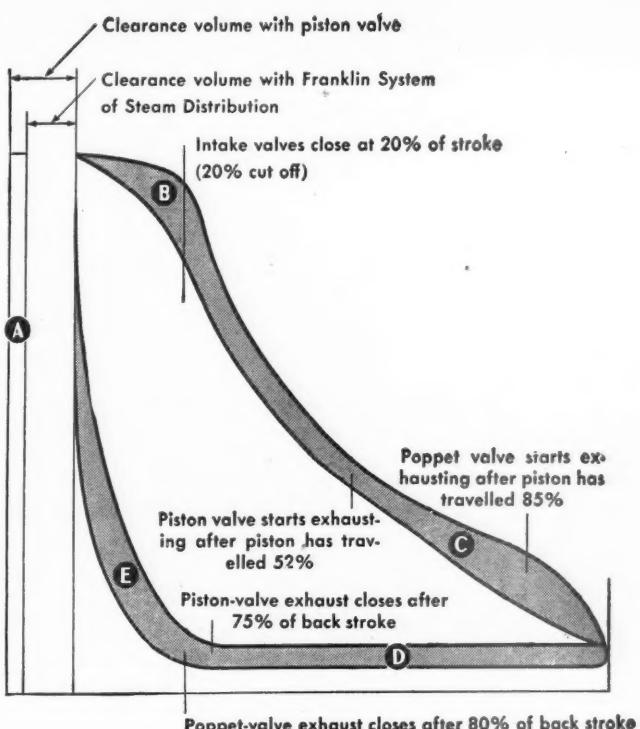
A With reduced clearance volume (space between intake valves and piston at end of stroke) more economical use is made of the steam admitted to cylinders.

B With larger steam flow areas and faster valve openings, steam enters the cylinder with smaller pressure drop. This increases the amount of steam admitted for a given cut-off — increases the power output for a given cut-off, or permits the use of a shorter and more economical cut-off for a given power output.

C With late release, the expansion period is increased substantially. This increases efficiency by increasing the amount of heat transformed into mechanical work.

D With late release and large exhaust areas, the back pressure is lower, which again increases the power obtained from a given amount of steam.

E With low back pressure, and late compression, excessive pressures at the end of the back stroke are avoided. Economical short cut-offs can be used without severe reactions on the running gear.



WITH

THE FRANKLIN SYSTEM OF STEAM DISTRIBUTION

These indicator cards represent a locomotive equipped with the Franklin System of Steam Distribution and a locomotive, identical in all other respects, equipped with piston valves. Both cards are based on high-speed operation at 20% cut-off.

As can be seen, the engine equipped with poppet valves can utilize full boiler capacity because of the larger steam flow areas and the faster opening and closing of valves. It develops more horsepower per pound of steam. It uses less fuel and water to deliver a given horsepower output.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.

NEW YORK • CHICAGO • MONTREAL

STEAM DISTRIBUTION SYSTEM • BOOSTER • RADIAL BUFFER • COMPENSATOR AND SNUBBER • POWER REVERSE GEARS
AUTOMATIC FIRE DOORS • DRIVING BOX LUBRICATORS • STEAM GRATE SHAKERS • FLEXIBLE JOINTS • CAR CONNECTION



president and general manager in 1936, and president in December, 1937. Mr. MacEnulty was elected vice-chairman of the board in April, 1945, and chairman on June 13, 1946. He was president of the American Railway Car Institute for many years and at present is a director of the institute.

Henry H. Talboys, manager of the railway equipment division of the **Nordberg Manufacturing Company**, Milwaukee, Wis., has been elected vice-president in charge of the railway equipment division, with headquarters as before at Milwaukee. Mr. Talboys was born at Osceola, Wis., on September 3, 1881, and received his higher education at Cornell University. From 1904 to 1908 he served with the National Railway Construction Company on construction work, and from 1908 to 1911 he was engaged in mining work with the Oliver Iron Mining Company. In 1912



Henry H. Talboys

Mr. Talboys joined the Ingersoll-Rand Company as a salesman, and served in that capacity until 1921, when he became sales manager of the Lake Superior Loader Company. In 1923 he was appointed manager of the railway equipment division of Nordberg, the position he held at the time of his recent election to the vice-presidency.

Forest H. Humphreys, formerly assistant general supervisor of the safety and claims division of the **American Car & Foundry Co.**, has been appointed manager of that division, with headquarters in New York, to succeed Karl N. Searles, retired. Mr. Humphreys will have charge of safety and claims in all of the company's plants.

John R. Johnston, sales manager in the Milwaukee (Wis.) district office of the **Carnegie-Illinois Steel Corporation**, has been appointed assistant general sales manager, with headquarters at Pittsburgh, Pa. **Charles E. McIntyre**, assistant manager of the district sales office at Detroit, Mich., has been appointed sales manager of the district sales office at Milwaukee, succeeding M. Johnston.

OBITUARY

Nelson F. Burns, sales representative of the Vapor Car Heating Company, died

at Chicago on May 27. Born on January 12, 1875, he entered the service of the company on January 1, 1919. Prior to that date, he had served five years with the Pullman Company, and 24 years with the New York Central. At the time of his death he was special representative for the vice-president at Chicago.

Charles A. Kirk, executive vice-president of the International Business Machines Corporation, died suddenly on June 16, in Lyons, France. He was 43 years old.

Car Service

The Interstate Commerce Commission, through Amendment No. 2 to Service Order No. 534 revised, has extended from June 30 to December 31 the authority of Warren C. Kendall, chairman of the Car Service Division of the Association of American Railroads, as an agent of the commission to control the distribution of all empty freight cars.

The I. C. C. also has extended the effective expiration date of the following service orders to December 31.

No. 82, which requires railroads to make joint use of terminals within the Louisville, Ky., switching district to expedite the movement of cars containing livestock to and from the Bourbon Stock Yards. Amendment No. 4.

No. 244 (second revised), which provides rules for the distribution of grain cars at country loading points in periods of car shortage. Amendment No. 6.

No. 369, which provides increased demurrage charges on box cars. The amendment, No. 14, also provides that on cars subject to average agreements which are run-around a maximum of 4 debits may be offset by credits in accordance with tariff provisions.

No. 370, which provides increased demurrage charges on box cars in intra-terminal service on the State Belt of California. Amendment No. 6.

No. 434, which restricts free time on box cars held for unloading at ports to a maximum of 7 days. Amendment No. 5.

No. 624, which requires approval of the Office of Defense Transportation of permits and provides priority for export grain through North Atlantic ports. Amendment No. 6.

No. 646, which provides that vegetables from the Salinas-Watsonville district of California to be initially iced at the carrier's option at Roseville, Cal., San Jose or Stockton. Amendment No. 2.

No. 653, which provides for increased demurrage on gondolas, hoppers and covered hoppers. This amendment, No. 7, also provides that not to exceed 4 debits on run-around cars subject to average agreements may be offset by credits in accordance with tariff provisions.

No. 684, pertaining to lighterage restrictions in New York harbor. Amendment No. 2.

No. 692, pertaining to restrictions upon reconsignment of lumber, veneer of forest products. Amendment No. 2.

No. 699, pertaining to stock cars for petroleum products containers. Amendment No. 2.

The commission also extended through June 30 the life of Order No. 14 under Service Order No. 562, which authorized the rerouting of traffic because of floods in Iowa, Missouri and Nebraska. Service Order No. 562 authorizes Homer C. King, deputy director of the O. D. T. and an agent in car service matters for the commission, to divert and reroute freight traffic and empty cars in order to avoid congestion.

The O. D. T., meanwhile, has issued General Permit 31-A, which supersedes General Permit 31, and increases to 40,000 lb. the loading requirements for new fresh harvested Irish potatoes when originating in Arizona, California, Colorado, Idaho,

Nevada, New Mexico, Oregon, Utah and Washington. The permit became effective June 14.

Equipment and Supplies

PASSENGER CARS

S. P. to Purchase Additional Streamlined "City" Trains

The Southern Pacific has announced plans to augment its fleet of streamliners by the purchase of two complete "City of San Francisco" trains so that this now tri-weekly Chicago-San Francisco service may be placed on a daily schedule. Including the cost of the two 6,000-hp. Diesel-electric locomotives to power the trains, a total expenditure of over \$5,000,000 is called for. Acquisition of 42 additional cars is involved, including baggage and crew dormitory cars, dining cars, all-room sleepers, chair lounge and lounge-observation cars. This equipment will be in addition to the five Diesel locomotives and 52 lightweight passenger cars ordered in 1946, upon which delivery is only now commencing. Delivery of the latest order is not anticipated until the latter part of 1948.

Wabash to Add St. Louis-Kansas City Streamliner

The Wabash has announced that a new seven-car lightweight streamliner, to cost \$1,000,000, is under construction and will be placed in operation between Kansas City, Mo., and St. Louis. The new Diesel-powered train, to be known as the "City of Kansas City," will augment the existing service offered by the "City of St. Louis," for which streamlined equipment, purchased jointly with the Union Pacific, is on order.

FREIGHT CARS

The WESTERN FRUIT EXPRESS COMPANY has ordered 400 40-ton steel sheathed refrigerator cars from the American Car & Foundry Co.

The GREAT NORTHERN has ordered 500 50-ton 40½-ft. box cars to be built in its own shops at St. Cloud, Minn.

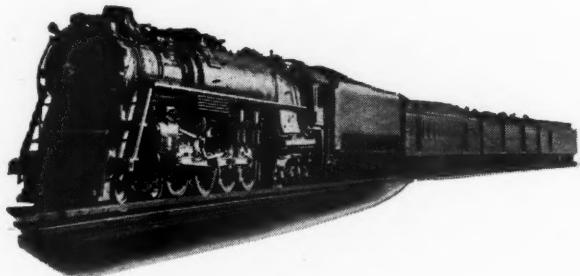
The PENNSYLVANIA has ordered 1,000 50½-ft. box cars to be built in its Altoona, Pa., shops.

SIGNALING

The CHESAPEAKE & OHIO has placed an order with the Union Switch & Signal Co. covering the necessary signaling materials for the installation of centralized traffic control between Limeville, Ohio, and Wheeler, approximately 11 mi., and for the remote control of passing siding switches in the territory from Wheeler, Ohio, to Parsons, approximately 81 mi. A 15-ft. Style C control machine, for handling both the C. T. C. and remote control systems and with the entire 92-mi.

It's throwing away coal...

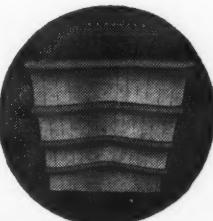
to operate a steam locomotive without maintaining a complete – and correctly designed – brick arch in the firebox at all times.



With a complete arch the locomotive utilizes its fuel with maximum effectiveness to develop its full steaming capacity.

For every type of locomotive there is a design of Security Brick Arch that will aid in securing the efficient combustion necessary to meet modern traffic demands.

**HARBISON-WALKER
REFRACTORIES CO.**
Refractories Specialists



AMERICAN ARCH CO. INC.
60 East 42nd Street, New York 17, N. Y.
Locomotive Combustion Specialists

track layout indicated on the model, will be located at Covington, Ky., 120 mi. from the nearest controlled point. The signaled territory will be handled by three carrier-controlled line sections over the total code line coverage of 212 mi. In addition to the control machine, the order includes the office and field code and carrier equipment, Style R-2 color-light signals, Style M-22A dual-control electric switch movements, T-21 hand-throw mechanisms with SL-21 electric switch locks, relays, rectifiers, transformers and housings. The field installation will be handled by railway forces.

The CHICAGO, BURLINGTON & QUINCY has placed an order with the Union Switch & Signal Co. for the required signaling material for a centralized traffic control installation between Balfour, Iowa, and Council Bluffs, the territory comprising 22.5 mi. of single track. A 2-ft. 6-in. Style C control machine, equipped with a train graph, will handle the entire territory. Besides the control machine, the order includes the required time code office and field equipment, Style M-22B dual-control electric switch layouts, Style SL-6A electric switch lock layouts, relays and rectifiers. Installation work will be handled by the regular construction forces of the railroad.

Construction

ATLANTIC COAST LINE.—This road has authorized a project involving the laying of industrial trackage at Tampa, Fla. The probable cost of this work is \$68,500.

PETALUMA & SANTA ROSA.—Division 4 of the Interstate Commerce Commission has authorized this road to construct a 1,152-ft. extension at Leddy, Cal., to a connection with an abandoned line of the Northwestern Pacific.

Financial

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Equipment Trust Certificates.*—This road has applied to the Interstate Commerce Commission for authority to assume liability for \$6,000,000 of Series Z equipment trust certificates. Proceeds will be applied toward the cost of the following all-steel equipment which will be constructed in the applicant's own shops:

Description	Estimated Unit Price
749 box cars	\$ 3,197
250 automobile cars equipped with loading devices	4,731
6 mail-express cars	48,000
6 baggage-dormitory cars	58,800
6 combination coach-sleeping cars	84,500
18 passenger coaches	74,900
6 dining cars	80,000
6 lunch-lounge cars	75,000
2 dining-lounge cars	75,000
12 sleeping cars	79,900

CHESAPEAKE & OHIO.—*Equipment Trust Certificates.*—This road has applied to the

Interstate Commerce Commission for authority to assume liability for \$3,150,000 of equipment trust certificates, the proceeds of which will be applied toward the acquisition of the following equipment: 2 2,000-hp. Diesel-electric passenger locomotives, at an estimated unit cost of \$201,069, from the Electro-Motive Division of the General Motors Corporation; 5 type 4-8-4 passenger locomotives, at \$361,010 each, from the Lima Locomotive Works; and 5 type 4-6-4 passenger locomotives, at \$353,346 each, from the Baldwin Locomotive Works. The certificates, to be dated July 15, will be sold on the basis of competitive bidding.

CHESAPEAKE & OHIO.—*Initial Preferred Dividend.*—This road has declared an initial dividend of 87½ cents a share on the new 3½ per cent convertible preferred stock, payable on August 1 to stockholders of record on July 7. Robert J. Bowman, president, announced that as a result of the recent merger of the Pere Marquette into the Chesapeake & Ohio, the holders of C. & O. common stock may anticipate slightly higher earnings per share for the current year.

DULUTH, SOUTH SHORE & ATLANTIC.—*Annual Report.*—Operating revenues of this road last year amounted to \$4,200,927, compared with \$4,061,969 in 1945. Operating expenses totaled \$3,833,582, compared with \$3,395,388. Fixed charges were \$895,536, compared with \$895,549. The net deficit was \$892,118, compared with a net deficit of \$519,927. Current assets at the end of the year were \$4,313,562, compared with \$4,275,262. Current liabilities were \$642,575, compared with \$573,073.

ILLINOIS TERMINAL.—*Equipment Trust Certificates.*—This road has sold, subject to approval by the Interstate Commerce Commission, \$1,030,000 of Series C equipment trust certificates to Stroud & Co. on a bid of 99.2183 for a 2 per cent annual interest rate. Proceeds of the certificates will be applied toward the acquisition of 350 box cars, as outlined in *Railway Age* of May 24, page 1099.

MISSOURI-KANSAS-TEXAS OF TEXAS.—*New Directors.*—One June 18, two new members were elected to the board of directors of this road, a subsidiary of the Missouri-Kansas-Texas: J. M. Bradshaw, president of the Hercules Oil Company, Dallas, Tex., and J. Lewell Lafferty, vice-president of the Fort Worth National Bank, Fort Worth. This completes the increase from 9 to 15 of this road's board members, as reported in the *Railway Age* of April 19, page 823.

NEW YORK, CHICAGO & ST. LOUIS.—*Equipment Trust Certificates.*—This road has applied to the Interstate Commerce Commission for authority to assume liability for \$1,350,000 of equipment trust certificates, the proceeds of which will be applied toward the purchase price of 19 1,000-hp. Diesel-electric standard switching locomotives. Five of the locomotives will be purchased from the American Locomotive Company at \$89,500 each; 2 from the Baldwin Locomotive Works at \$89,500 each; and 12, at \$89,533 each, from the Electro-Motive Division of the General Motors Corporation. The certificates will

be dated July 15 and sold on the basis of competitive bidding.

PETALUMA & SANTA ROSA.—*Acquisition.*—Division 4 of the Interstate Commerce Commission has authorized this road to acquire and operate that portion of a Northwestern Pacific abandoned line extending approximately 2 miles from a point near Leddy, Cal., to a point near Santa Rosa. Through the acquisition and the construction of a 1,152-ft. connecting segment, the applicant will effect a relocation of its existing line, which it has been authorized to abandon.

PULLMAN COMPANY.—*New Company Directors.*—Upon completion of the railroad buying group's acquisition of the Pullman Company from Pullman, Inc., and subject to approval by the federal district court at Philadelphia, a new board of directors will assume office. Only two of the new directors, C. R. Harding, assistant to the president of the Southern Pacific, at San Francisco, Cal., and Charles H. Westbrook, comptroller, of the Chicago & North Western, at Chicago, are railroad officers. The others are: Byron S. Harvey, Jr., president, Fred Harvey, Inc., Chicago; J. M. Harding, Omaha, Neb.; Edward M. Durham, Jr., St. Louis, Mo.; Joseph W. Shands, president, Atlantic National Bank, Jacksonville, Fla.; Ralph Nicholson, publisher, New Orleans Item, New Orleans, La.; John McF. Barr, president, First National Bank, Louisville, Ky.; Michael A. Morrissey, chairman, American News Company, New York; John J. McKeon, senior partner, Chas. W. Scranton & Co., New Haven, Conn.; George H. Love, president, Pittsburgh Consolidation Coal Company, Pittsburgh, Pa.; John A. Stevenson, president, Penn Mutual Life Insurance Company, Philadelphia, Pa.; John J. Rowe, president, Fifty-third Union Trust Company, Cincinnati, Ohio; Wilfred Sykes, president, Inland Steel Company, Chicago; George A. Eastwood, chairman, Armour & Co., Chicago; and Charles F. Codere, president, St. Paul Fire & Marine Insurance Co., St. Paul, Minn.

Counsel for the buying group of railroads are: Emmett E. McInnis, vice-president and general counsel of the Atchison, Topeka & Santa Fe; Jacob Aronson, vice-president and general counsel of the New York Central; John Dickinson, vice-president and general counsel of the Pennsylvania; and Henry L. Walker, assistant general solicitor of the Southern.

Average Prices Stocks and Bonds

	June 24	Last week	Last year
Average prices of 20 representative railway stocks	45.46	44.83	62.86
Average prices of 20 representative railway bonds	88.20	87.04	98.42

Dividends Declared

Belt Stockyards.—common, 50¢, quarterly; 6% preferred, 75¢, quarterly, both payable July 1 to holders of record June 20.

Chesapeake & Ohio.—3½% preferred, 87½¢, initial quarterly, payable August 1 to holders of record July 7.

Providence & Worcester.—\$2.50, quarterly, payable July 1 to holders of record June 16.

Wheeling & Lake Erie.—4% prior lien, \$1.00, quarterly; 5½% convertible preferred, \$1.37½, quarterly, both payable August 1 to holders of record July 21.

HEAT *Saved* is FUEL *Saved*

With the increase in cost of fuel, it is of paramount importance to reclaim as much as practicable of the heat in exhaust steam.

Boiler feedwater is the best medium for accomplishing this recovery.

The most practical equipment to effect this reclamation is the Elesco exhaust steam injector. It recovers heat from exhaust steam, feeds the boiler, saves fuel or increases boiler capacity.

**DEPENDABLE—LIGHT IN
WEIGHT—EFFICIENT**



A-1799

Superheaters • Superheater Pyrometers • Exhaust Steam Injectors • Steam Dryers • Feedwater Heaters • American Throttles

Railway Officers

EXECUTIVE

L. J. Benson, whose appointment as assistant to the president of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Chicago, was announced in the *Railway Age* of June 14, was born at St. Louis, Mo., on June 14, 1890, entered railroad service in 1906 as a call boy on the Milwaukee, at Milwaukee, Wis., and worked as engine wiper, machinist helper, and passenger trainman until 1914, when he entered the road's police department at Chicago. In 1917 he was appointed captain of police at La Crosse, Wis., and in July, 1920, he was named superintendent of police at Seattle, Wash. Mr. Benson was



L. J. Benson

appointed general superintendent of police at Chicago in January, 1923, and in January, 1939, he was promoted to assistant to the chief operating officer, in charge of the division of safety, the division of police, the division of fire and fire prevention, and the division of smoke abatement. On December 1, 1945, he was advanced to assistant to the vice-president, the position he held at the time of his recent promotion. Mr. Benson is the originator of the legislation which created in Illinois a state bureau of identification and investigation; he is also a former member of the Illinois State Board of Pardons.

J. O. McIlyar, assistant to the western traffic manager of the Chicago, Milwaukee, St. Paul & Pacific at Seattle, Wash., has been appointed assistant to the vice-president, with headquarters at Chicago, a newly created position.

W. G. Whitsett, general passenger agent of the Louisville & Nashville at New Orleans, La., has been appointed assistant to the vice-president, traffic, with headquarters at Louisville, Ky.

Cecil M. Self, whose appointment as executive assistant to president of the Norfolk Southern at Norfolk, Va., was reported in the *Railway Age* of June 7, was born at Oakman, Ala., on February

9, 1900. Mr. Self received his LL.B. from Atlanta (Ga.) Law School in 1930. During vacations from school and while on leaves of absence, he worked as laborer and mechanic; made special studies of railroad yard and terminal operations; and made special study of railroad reorganization problems. Mr. Self entered railroad

1, 1920, as general manager of the fuel mine operations at Dorothy, W. Va. He was appointed chairman of the allotment commission on August 1, 1923, subsequently becoming engineer of coal properties. Mr. Davis was appointed assistant vice-president at Huntington in September, 1945.



Cecil M. Self

service in 1918 as clerk with the Southern, later becoming accountant in the maintenance of way and transportation departments. From 1921 to August, 1939, he served successively as chief clerk to roadmaster, chief clerk to chief dispatcher, chief clerk to engineer maintenance of way, chief clerk to superintendent, assistant trainmaster and trainmaster. Mr. Self was executive assistant of the Chicago, Indianapolis & Louisville at Chicago from August, 1939, to April, 1942, then serving as chief operating officer of that road at Chicago from April, 1942, to May, 1946. Mr. Self's appointment as executive assistant to president of the Norfolk Southern became effective May 14, 1947.

Charles E. Lawall, engineer of coal properties of the Chesapeake & Ohio, with headquarters at Huntington, W. Va., has been appointed assistant vice-president, with the same headquarters, succeeding **Ira F. Davis**, who will retire on July 1, after



Ira F. Davis

more than 27 years of continuous service. Mr. Davis was born on October 15, 1875, at Fayetteville, W. Va., and entered the service of the Chesapeake & Ohio on March

FINANCIAL, LEGAL AND ACCOUNTING

J. E. McConnell, whose retirement as auditor of disbursements of the Missouri Pacific, with headquarters at St. Louis, Mo., was reported in the *Railway Age* of June 14, was born at St. Louis on February 1, 1882, entered railroad service on June 1, 1898, as an office boy in the passenger accounting department of the Missouri Pacific at St. Louis, and served in various minor capacities until February 1, 1916, when he became division accountant. From March 25, 1917, to October 19, 1919, he was special accountant and valuation accountant for the Delaware & Hudson, at Albany, N. Y. Mr. McConnell returned to the Missouri Pacific on the latter date as special accountant, became traveling auditor on September 1, 1920, and was promoted to chief traveling auditor on June 1, 1935. On November 1, 1938, he was advanced to assistant auditor of disbursements, and on February 1, 1946, he was promoted to auditor of disbursements, the position he held at the time of his retirement.

J. A. Parker, whose retirement as general freight claim agent of the St. Louis Southwestern, with headquarters at Tyler, Tex., was reported in the *Railway Age* of June 21, was born in Missouri on November 18, 1874, entered the freight claim department of the St. Louis Southwestern, at St. Louis, Mo., in 1892, and served in various capacities until 1898, when he was transferred to Tyler. After a short period of service at Mt. Pleasant, Tex., Mr. Parker returned to the freight claim department at St. Louis, where he advanced to the position of assistant freight claim agent. On May 20, 1926, he was appointed freight claim agent, with headquarters at Tyler, and in 1933 he was advanced to general freight claim agent, the position he held at the time of his retirement.

The Gulf, Mobile & Ohio has announced changes in its accounting department in connection with its consolidation with the Alton. **L. W. Swann**, auditor, subsidiary lines, G. M. & O., becomes assistant to vice-president and comptroller, with headquarters as before at Mobile, Ala. **J. S. Gibson**, deputy comptroller, G. M. & O., remains at Mobile in the same capacity. **T. C. Schley** remains as assistant to the vice-president, G. M. & O., at Mobile. **L. A. DeOrnellas** remains as assistant to comptroller at Mobile. **C. D. Sipe**, assistant to the chief executive officer of the Alton, at Chicago, becomes assistant to comptroller, with the same headquarters. **C. W. Peterson** remains as general auditor of the G. M. & O., at Mobile. **V. E. Deimel** remains as auditor of joint facilities, G. M. & O., at Mobile. **A. M. Yost** remains as auditor of disbursements, G. M. & O., at Mobile, and **J. W. Hanlein**,

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Engine and generator are perfectly balanced—power output and speed completely synchronized. There's no drop in the performance curve. For each throttle position, a constant horsepower output is maintained.

Tamperproof safety features provide automatic protection in emergencies. Should lube oil pressure run low, or a blocked passage cause pump suction to rise too high, the governor shuts the engine down, rings an alarm in all

units, and flashes a light in the unit affected.

The safety devices cannot be reset or blocked out until the trouble is remedied; bearings and crank-shaft can never run with insufficient oil pressure.

Easily accessible for adjustment and servicing, this compact, fool-proof governor is the latest example of the advanced engineering features which give the F3 the widest scope of services in the world.

It's another evidence of Electro-Motive's years of pioneering and research—a matchless result of two and a half decades spent acquiring intimate knowledge of internal combustion engines and control of electrical transmission.



ELECTRO-MOTIVE DIVISION

GENERAL MOTORS

LA GRANGE, ILL.

Jr. remains as assistant auditor of disbursements, at Mobile. **F. N. Johnson**, auditor of receipts, G. M. & O., at Mobile, remains in the same capacity. **C. H. Nutt**, auditor of freight accounts of the Alton, at Chicago, becomes associate auditor, G. M. & O., at Mobile. **F. R. Venturini**, assistant auditor of receipts, G. M. & O., remains in the same capacity at Mobile. **D. A. Stewart**, freight claim agent of the Alton, at Mobile, remains in the same capacity, G. M. & O., with the same headquarters. **G. A. Rush** becomes auditor of passenger accounts, at Mobile, and **H. A. Pierre** becomes assistant to the auditor of receipts.

OPERATING

C. G. Taylor has been appointed inspector of transportation of the Missouri Pacific, with headquarters at Houston, Tex.

Col. Dwight L. Smith, acting general manager of the Chicago North Shore & Milwaukee, has been appointed general manager, with headquarters at Highwood, Ill., succeeding the late **S. A. Morrison**, whose death on April 24, at Evanston, Ill., was reported in the *Railway Age* of May 3.

John C. O'Neill, whose appointment as general manager of the Alabama, Tennessee & Northern, with headquarters at Mobile, Ala., was reported in the *Railway Age* of June 7, was born at Cincinnati,



John C. O'Neill

Ohio, on August 19, 1900, and entered railroad service in 1922 with the Louisiana & Arkansas and the Mississippi Central joint agency, at New Orleans, La. During 1925 and 1926 he was general agent of the same lines at Pittsburgh, Pa., whence he was transferred to Chicago, where he served until December 31, 1927. On January 1, 1928, he was appointed general agent of the A. T. & N., at Mobile, and in October, 1929, he became division freight agent. Mr. O'Neill was promoted to general freight agent in March, 1937, and in November, 1944, he was advanced to traffic manager, the position he held at the time of his recent promotion.

F. E. Hoefer, whose appointment as superintendent of the Dallas and Austin divisions of the Southern Pacific, with headquarters at Ennis, Tex., was reported in the *Railway Age* of May 24, was born

at Poplar Bluff, Mo., on August 11, 1894, and entered railroad service in July, 1913, as a clerk with the St. Louis, Iron Mountain & Southern (now part of the Missouri Pacific), at Doniphan, Mo. He went with the St. Louis Southwestern as agent



F. E. Hoefer

telegrapher in December, 1913, returned to the Iron Mountain in the same capacity in July, 1914, and became telegrapher with the Panhandle & Santa Fe (part of the Atchison, Topeka & Santa Fe) in April, 1916, at Amarillo, Tex. He entered the service of the Houston & Texas Central (part of the Southern Pacific) as a telegrapher on July 26, 1916, entered the armed forces in May, 1917, and returned to the Southern Pacific in September, 1919, in his previous capacity. In 1922 he became a train dispatcher, and in 1926 he was promoted to chief train dispatcher. Mr. Hoefer was appointed trainmaster in 1936, and in 1942 he was advanced to assistant superintendent, the position he held at the time of his recent promotion.

W. F. Ingraham, whose appointment as special representative to the general manager of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Mason City, Iowa, was reported in the



W. F. Ingraham

Railway Age of June 14, was born at Evanston, Ill., on November 1, 1879. After a short period of service as an office boy with the Chicago & Northwestern, he entered the service of the Milwaukee in 1898, and served as brakeman, baggage-man, conductor, trainman, and yardmaster

until 1918, when he was appointed trainmaster on the Sioux City and Dakota division, with headquarters at Sioux City, Iowa. In 1923 Mr. Ingraham was promoted to assistant superintendent of the Chicago terminal. In November, 1925, he was advanced to superintendent on the Iowa and Dakota division, which was consolidated with the Sioux City and Dakota division in 1932, with headquarters at Mason City, the position he held at the time of his recent promotion.

B. F. Wells, general superintendent of the Union Pacific at Cheyenne, Wyo., has been appointed assistant general manager, with headquarters at Salt Lake City, Utah. **Elgin Hicks**, superintendent of the Wyoming division, has been appointed general superintendent, with headquarters as before at Cheyenne, succeeding Mr. Wells. **C. E. Breternitz**, assistant superintendent at Laramie, Wyo., has been promoted to superintendent of the Wyoming division, at Cheyenne, replacing Mr. Hicks. **F. E. Terwilleger**, assistant superintendent at Green River, Wyo., succeeds Mr. Breternitz as assistant superintendent of the Wyoming division, with headquarters at Green River. **H. A. Achenbach**, trainmaster of the sixth subdivision at Laramie, has been named trainmaster of the fifth subdivision in addition.

MECHANICAL

John Pfeiffer, whose retirement as superintendent of motive power of the Fort Worth & Denver City and the Colorado & Southern, (parts of the Burlington system), with headquarters at Denver, Colo., and Childress, Tex., was reported in the *Railway Age* of June 7, was born at Creston, Iowa, on May 25, 1875, entered railroad service in 1892, as a wiper on the Burlington, at Creston, and served in various minor capacities until 1914, when he was appointed general foreman, at Quincy, Ill. In 1915 he was promoted to master mechanic, and served in that capacity at Centerville, Iowa, Chicago, and Beardstown, Ill. Mr. Pfeiffer was advanced to superintendent of motive power of the F. W. & D. C. in 1919, and in 1936 he was also appointed superintendent of motive power of the C. & S., the position he held at the time of his retirement.

A. V. Nystrom, district general car foreman of the Chicago, Milwaukee, St. Paul & Pacific, at Chicago, has been appointed assistant general superintendent, locomotive and car departments, with headquarters at Milwaukee, Wis. **H. L. Hewing**, district general car foreman, at Tacoma, Wash., has been transferred to Chicago. **C. E. Barrett**, district general car foreman, at Minneapolis, Minn., has been transferred to Tacoma. **Ernest Buchholtz**, general car foreman, at Chicago, has been appointed district general car foreman, with headquarters at Minneapolis.

John L. Roach, whose promotion to superintendent of motive power of the Fort Worth & Denver City (part of the Burlington system), with headquarters at Childress, Tex., was announced in the *Railway Age* of June 7, was born at

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SAVAGE IMPACT!

MULTI-DIRECTIONAL STRESSES
TWISTING
BUCKLING



Racor Quality and Racor Engineering Ingenuity

REDUCE MAINTENANCE COSTS • PROVIDE MAXIMUM SAFETY • SPEED TRAINS ON THEIR WAY

Speeding tonnage!! Incredible battering impact!! Routine punishment taken by Special Track Construction — yearly — daily — Yes, hourly.

Here in RACOR Manganese Steel Crossings, you will find That quality of metal, That production ingenuity, That superior design from years of research — which mean added safety, lower maintenance costs and a higher efficiency in speeding your trains on their way.



Pioneers in the development and manufacture of

DEPTH HARDENED CROSSINGS

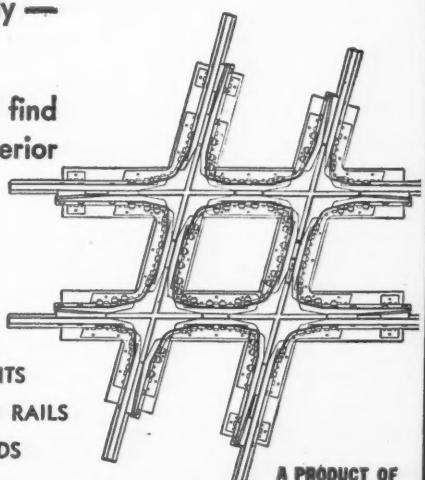
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AUTOMATIC SWITCH STANDS

MANGANESE STEEL GUARD RAILS

REVERSIBLE MANGANESE STEEL CROSSINGS

VERTICAL SWITCH RODS



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RAKE SHOE RESEARCH

World's most complete line of Track Specialties

"Use RACOR Special Trackwork where stress and wear are greatest"

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ONLY RAMAPO HAS PLANTS FROM COAST TO COAST TO EXPEDITE AMERICA'S RAILROAD NEEDS

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SUPERIOR, WIS. • DENVER, COLO. • PUEBLO, COLO. • LOS ANGELES, CALIF. • HOUSTON, TEXAS • SEATTLE, WASHINGTON
CANADIAN RAMAPO IRON WORKS, LTD., NIAGARA FALLS, ONT.

Greencastle, Ind., on November 25, 1874, entered railroad service in 1889 as a round-house laborer on the Missouri Pacific at Kansas City, Kan., served as machinist apprentice, and became a journeyman machinist in 1895. In 1900 he entered the service of the Atchison, Topeka & Santa Fe, worked one year as a machinist, and



John L. Roach

the following three as shop foreman. After a year as machine foreman of the Denver & Rio Grande Western at Pueblo, Colo., Mr. Roach joined the Colorado & Southern (part of the Burlington system), at Denver, Colo., and served as a machinist and assistant roundhouse foreman until March, 1907, when he became shop foreman of the F. W. & D. C., at Childress. A year later he was promoted to general foreman and in 1910 he was advanced to master mechanic, with the same headquarters, the position he held at the time of his recent promotion.

TRAFFIC

Harvey H. Coleman has been appointed freight traffic manager of the Detroit, Toledo & Ironton, with headquarters at Dearborn, Mich.

W. A. Blank has been appointed general freight agent of the Fort Worth & Denver City (part of the Burlington system), with headquarters at Fort Worth, Tex., succeeding **Y. E. Juge**, who has been appointed assistant freight traffic manager, with the same headquarters, a newly created position.

E. L. Thrall, assistant freight traffic manager of the Pere Marquette (Chesapeake & Ohio system), with headquarters at Detroit, Mich., has retired after 40 years of service with the road. Born in Michigan, he was employed by the Pere Marquette in 1907 as a ticket agent at Paw Paw Lake, Mich., and served in various minor capacities in the operating department at St. Joseph, Mich., and Detroit until April, 1910, when he was appointed tariff clerk in the tariff bureau. In June, 1920, he was promoted to chief clerk, tariff bureau, and in July, 1931, he was appointed chief of the tariff bureau. Mr. Thrall was promoted to assistant general freight agent in July, 1936, and to general freight agent in March, 1939. In February, 1946, he was advanced to

assistant freight traffic manager, at Detroit, the position he held at the time of his retirement.

W. J. Ficht, whose appointment as general passenger agent of the Seaboard Air Line at Miami, Fla., was reported in the *Railway Age* of May 31, was born at Callery, Pa., on February 27, 1902, and entered railroad service in 1920 in the accounting department of the New York Central at New York. In 1921 he became a ticket seller for that road, a position he held until March, 1924, when he became associated with the Seaboard Air Line as assistant city ticket agent at St. Petersburg, Fla. In 1931, after several promotions, he was transferred to Buffalo, N. Y., as district passenger agent. Five years later he became assistant to the general passenger agent at Norfolk, after serving in various capacities in Seaboard offices at Pittsburgh, Pa.; Chicago; Tampa,



W. J. Ficht

Fla.; and Atlanta, Ga. In November, 1940, Mr. Ficht became assistant general passenger agent, being appointed general passenger agent at Tampa, Fla., in June, 1943. He became assistant to passenger traffic manager at Norfolk in December, 1944, in which position he remained until his recent appointment as general passenger agent.

ENGINEERING & SIGNALING

A. K. McKeithan, assistant engineer of the Missouri Pacific, has been appointed division engineer, with headquarters at Houston, Tex.

R. W. Troth, signal engineer of the St. Louis-San Francisco, at Springfield, Mo., has been appointed superintendent, communications and signals, with the same headquarters. **R. E. Testerman**, assistant signal engineer, at Springfield, has been appointed assistant superintendent, communications and signals, with the same headquarters. **G. F. Linster**, superintendent of telegraph at Springfield, has retired after more than 51 years of service.

J. B. Wilson, division engineer of the Georgia, has been appointed chief engineer, with headquarters at Atlanta, Ga. **G. S. Joseph**, principal assistant engineer, has been appointed consulting engineer, at At-

lanta. **W. R. Peck**, engineer maintenance of way, has been appointed principal assistant engineer, with headquarters as before at Atlanta.

W. C. Wilder, structural draftsman of the Boston & Maine, has been appointed assistant engineer—structural, with headquarters at Boston, Mass.

E. B. Crane, whose promotion to assistant chief engineer, Lines West, of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Seattle, Wash., was announced in the *Railway Age* of June 7, was born at Dexter, Iowa, on March 15, 1882, and received his higher education at the University of Iowa. After a short



E. B. Crane

period of service with another road, he was employed by the Milwaukee on November 18, 1905, as a resident engineer at Sumner, Wash., and served successively as terminal engineer on construction, assistant engineer construction and maintenance, and assistant engineer maintenance of way, at various points in Washington until 1914. In 1915 Mr. Crane was appointed pilot engineer, valuation department at Chicago, and he served during 1916 and 1917 as assistant engineer in the same department. He was named assistant valuation engineer in 1918, and engineer auditor in 1920. In 1922 he was appointed principal assistant engineer, with headquarters at Seattle, Wash., the position he held at the time of his recent promotion.

OBITUARY

Jerome M. Carley, assistant engineer-valuation of the Boston & Albany, died recently at his home in Waban, Mass.

L. P. Hungerford, general western freight agent of the Southern, with headquarters at Chicago, died on June 20, at Hinsdale, Ill.

Joseph H. Dyer, who retired on April 1, 1942, as vice-president in charge of operations of the Southern Pacific at San Francisco, Cal., died in that city on June 14.

William D. Robb, who retired on June 30, 1931, as vice-president of the Canadian National, at Montreal, Que., died in that city on June 23.



FIVE Advantages of Inland HI-STEEL

The low alloy, high strength steel

1 HIGHER STRENGTH

In contrast with ordinary structural steel, Inland Hi-Steel has nearly twice the yield strength, the same elongation, and almost 50% higher fatigue strength. With Hi-Steel, designers can increase strength without resorting to excessive weight and size of parts. On mobile units, Hi-Steel increases payload without sacrificing strength.

3 MORE RESISTANT TO ABRASION

In resistance to abrasion, Hi-Steel is far superior to copper-bearing and ordinary structural steels. Coal companies and other bulk material producers use Hi-Steel in chutes, screens, and bunkers because of its long life. Where both abrasion and atmospheric corrosion are combined, Hi-Steel will outlast many "abrasion-resistant" steels.

5 LOW IN COST

The price per pound of Inland Hi-Steel is only moderately higher than ordinary structural steel. However, where a given strength is desired, sections of Hi-Steel can be made lighter, so the total cost of steel is frequently not increased. On mobile equipment, this weight saving quickly pays for the small difference in price by an increase in payload.

2 GREATER CORROSION RESISTANCE

Hi-Steel has more than twice the atmospheric corrosion resistance of copper-bearing steel and about five times that of ordinary structural steel. When its bare surface is exposed for a long period, the elements in it contribute to the production of a dense adherent rust which acts as a protective coating and greatly retards further corrosion.

4 EASY TO WORK

Because of its high ductility, Hi-Steel can be worked either hot or cold with little or no deviation from standard shop practice. It does not normally require heat treatment to retain or to restore its normal properties after working. Hi-Steel can also be flame cut as easily as ordinary structural steel, and can be welded by conventional methods.

HI-STEEL meets the requirements
of SAE Specification 950

Hi-Steel is rolled in structural sections, bars, plates, strip, and sheets. While the supply is limited, every effort is being made to bring you Hi-Steel in greater quantities.

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Because Plymetl creates important savings in weight and cost, it has become the favorite material for partitions and doors in modern lightweight passenger cars. Lighter than hollow steel or hollow aluminum partitions, Plymetl partitions save several hundred pounds of deadweight per car. Easier to install and to finish, Plymetl saves man-hours in application. Specify Plymetl. Its advantages have long been recognized and employed by the railroads listed at the right.



Plymet¹ (THE metal-clad plywood) is a leader among leaders. The new "Plan With Plymet¹" catalog contains complete information on application, fabrication, fastening and finishing. Write for free copy today.

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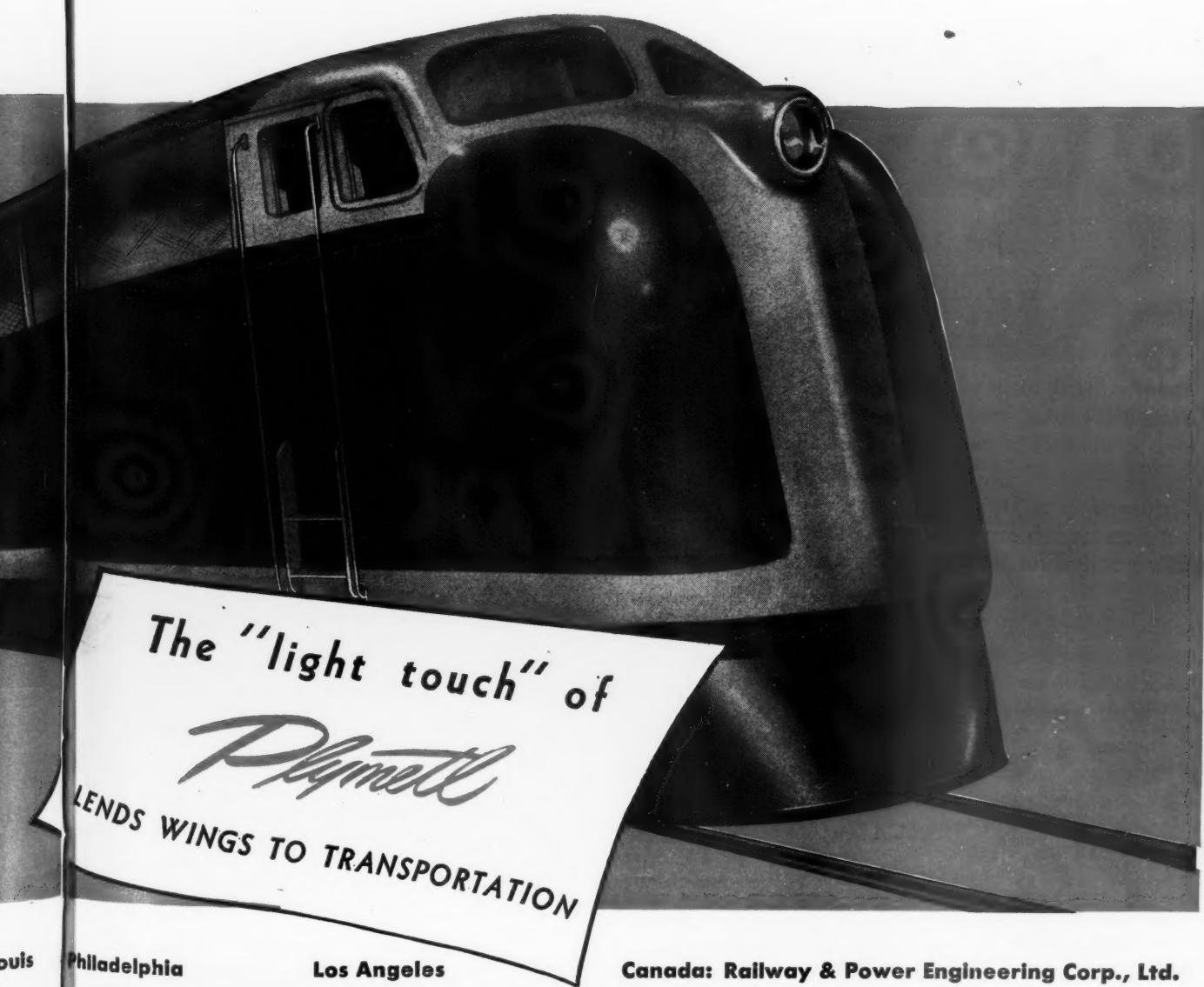
Cleveland

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A nation's leading railroads

**The Alton Railroad - The Atchison, Topeka and Santa Fe Railway System
Canadian National Railway System - Chicago and Eastern Illinois Railroad
Chicago and Northwestern Railway System - Illinois Central System
Missouri Pacific Lines - New York Central System (Big Four) - Northern
Pacific Railway Company - Rock Island Lines - St. Louis-San Francisco
Railway (Frisco Lines) - Southern Railway System - Union Pacific Railroad
Company - Wabash Railroad Company**



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June 28, 1947



Kitchen luster for luxury trains

THIS modern "kitchen on wheels" has just gone into service on a well-known streamliner. Designed for utility and long, economical service, it is furnished completely with equipment made of ARMCO Stainless Steel.

Gleaming ARMCO Stainless is strong, rustless and attractive. Because it is easy and inexpensive to clean, it is especially practical for kitchen and bar equipment, window-frames, trim, hardware and accessories. Soap and water, or common cleaners, keep it clean and bright.

Another important feature of ARMCO Stainless is its resistance to corrosion. Food and beverage acids cannot stain its hard, smooth surface.

Remember, when ordering new cars or replacement parts, that there is a grade or finish of ARMCO Stainless

Steel sheets, strip, bars and wire to meet every railroad need. For information just get in touch with our nearest district office, or write direct to: The American Rolling Mill Company, 11161 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.

TURN IN YOUR SCRAP—PROTECT YOUR STEEL SOURCE

Unless steel mills get more scrap at once, everybody must wait longer for steel. You can help. Check your unusable tools, machines and obsolete equipment. Collect all the iron and steel scrap you can find and speed it through regular channels to the mills. The need has never been more critical—not even in wartime.



THE AMERICAN ROLLING MILL COMPANY

• SPECIAL-PURPOSE SHEET STEELS

• STAINLESS STEEL SHEETS, STRIP, BARS AND WIRE

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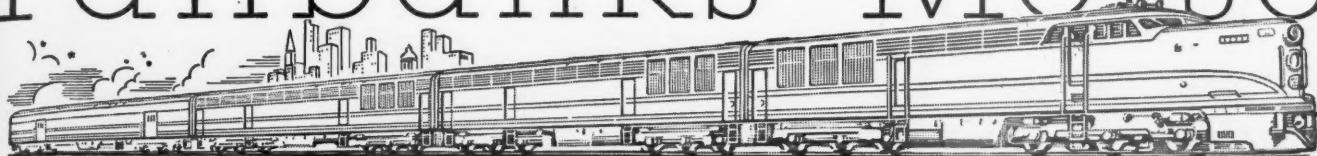
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Fairbanks-Morse



ASSEMBLY LINE METHODS USED IN LOCOMOTIVE MANUFACTURE



Fairbanks-Morse Plant Is Modern, Efficient, Geared for Maximum Production

If awards for efficient production were given out today, a mighty big "E for Efficiency" would surely go to the Fairbanks-Morse diesel road locomotive assembly plant.

Geared for steady volume production, the plant is equipped to handle every step in the assembly of giant, 2,000-hp road locomotives. Most spectacular is the locomotive assembly line itself, a portion of which is pictured. Housed in a vast, amply-lighted building, the assembly line sees each locomotive start with the building of skeleton sections, progress through various stages at which component parts are added, and finally emerge at the end a sleek, high-powered diesel locomotive, ready for testing and eventual service "on the rails."

Fairbanks-Morse diesel road locomotives are designed to be equally suitable for passenger and freight service, the only major step needed to make the change from one to the other being a readjustment of gear ratios. They are available in "A" or "B" units, the "A" unit comprising front and rear sections and containing operating controls, and the "B" unit containing supplementary power plants and no operating controls.

As on all Fairbanks-Morse diesel locomotives, power is supplied by the famed Fairbanks-Morse "opposed-piston" diesel engine, now proved by substantially more than 3½ million horsepower in active service. This engine differs from the conventional diesel in that there are two pistons

within each cylinder, which are driven in opposite directions by a central explosion. Each engine in the Fairbanks-Morse diesel road locomotive develops 2,000-hp.

Compactness, simplicity, and economy of operation are major advantages of the opposed-piston diesel engine. It is built without cylinder heads, valves, or valve-activating mechanisms. With a minimum of moving parts to wear or require adjusting, maintenance work is thus kept to a minimum.

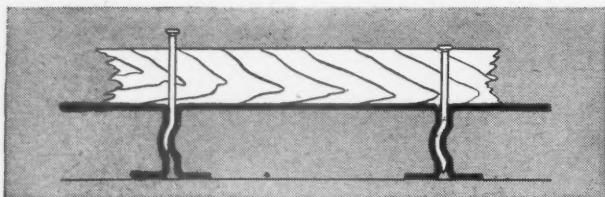
Ever-growing interest in Fairbanks-Morse diesel road locomotives is evidenced not only by the number that are already in operation on major railroads today, but also by the many locomotives that are now on order for future delivery. Their dependability and low operating costs are established facts.

Fairbanks-Morse: a name worth remembering.

FOR FURTHER INFORMATION ON FAIRBANKS-MORSE DIESEL LOCOMOTIVES, WRITE, WIRE, OR PHONE RAILROAD DIVISION,
FAIRBANKS, MORSE & CO., FAIRBANKS-MORSE BLDG., CHICAGO 5, ILLINOIS

You Save 3 Ways

WITH ALL-PURPOSE NAILABLE STEEL



STRONGER NAIL GRIP — TIGHTER SURFACE! This cross-section of Nailable Steel Flooring shows how the curved channel flanges grip ordinary nails with a holding force four times that of wood. A special stiff plastic material in the nailing grooves seals itself when the nails are withdrawn. The floor *stays* tight—suitable for all types of lading!

EASY INSTALLATION! Nailable Steel Flooring is here being installed in a DT&I gondola. Channels—cold-formed eight inches wide, in gages from 6 to 12, depending on the application—are welded to the underframe with little or no change in design.



1. LOWER OPERATING COSTS

Cars with Nailable Steel Floors can handle *all* types of freight. Switching and assembly operations to provide floors suitable for the lading are eliminated. Turn-around time is lowered, car supply improved. Nailable Steel Flooring cuts operating costs all down the line.

2. LESS MAINTENANCE EXPENSE

Stronger structurally, in impact- and wear-resistance, Nailable Steel Flooring cuts maintenance and floor replacement costs because it lasts longer. It's flat and smooth—can't be ripped up by unloading tools. Under normal operating conditions it is expected at last *as long as the car itself*.

3. FEWER DAMAGE CLAIMS

Nailable Steel Flooring offers greater protection to goods in transit. It is smooth—without splinters or sharp edges—non-absorbent, and permits more secure blocking, because nails are gripped tighter in the channel grooves than in wood. From loading dock to consignee, freight is safer on Nailable Steel Flooring.

GREAT LAKES STEEL
STEEL FLOOR DIVISION • DETROIT 18, MICH.



BETTER BLOCKED AND SKIDDED LOADS! This typical example shows heavy freight in a boxcar equipped with Nailable Steel Flooring.

Nailable Steel Flooring is a great new development in freight car construction and offers major advantages over conventional flooring. Because it's tough, tight and nailable, it can handle all types of gondola and boxcar freight—finished goods that must be blocked in place, fine bulk freight that requires a tight car, and heavy, rough material that chews up less durable surfaces.

Made of tough, corrosion-resistant N-A-X HIGH-TENSILE, Nailable Steel Flooring channels are designed for high wear-resistance, impact-toughness and structural strength. Channel surfaces may become dented, but the flanges do not give and the floor remains generally flat throughout its length. After the roughest loading and unloading of the heaviest materials, Nailable Steel Flooring provides a good surface for skidded loads.

Moreover, the rigidity of the channels strengthens the entire car . . . makes it better able to withstand humping and sudden stops. It will pay you to investigate the use of Nailable Steel Flooring for new-car construction and old-car rebuilding. Write for booklet.



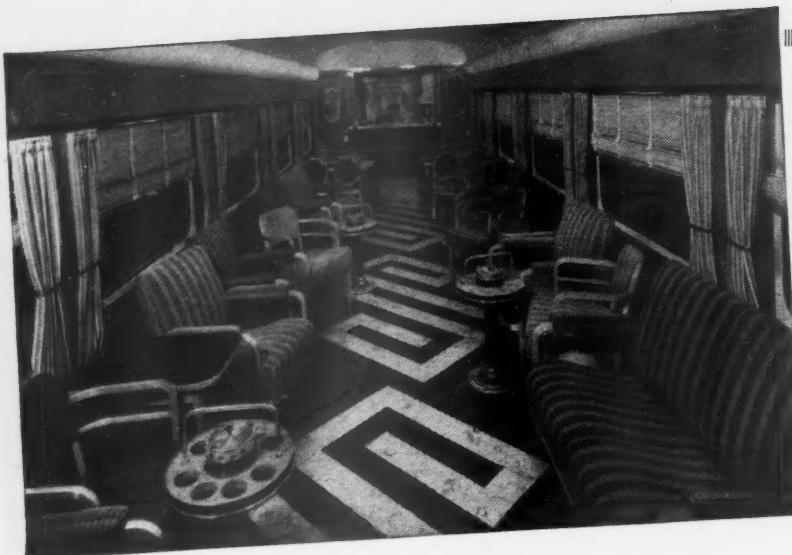
IT CAN "TAKE IT"! Steel scrap loaded in a gondola. After 16 months of tough steel mill service, this Nailable Steel Floor has retained the over-all flat contour necessary for skidded loads. Nailability is not impaired.

**N-A-X High-Tensile Steel
Offers Superior Properties
For Many
Railway Applications**

Profitable railway applications of N-A-X HIGH-TENSILE steel are by no means limited to Nailable Steel Flooring. With a 50% higher yield strength than carbon steels, N-A-X HIGH-TENSILE can cut deadweight and increase payloads in many ways. It combines a high degree of strength and toughness with good fatigue- and corrosion-resistance and excellent cold-forming and welding properties.

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B & O CHOOSES
Adlake Breather Windows
CINCINNATIAN
for New



AS MODERN AS TOMORROW,
the new B&O *Cincinnatian* offers
one of the *fastest* train services be-
tween Cincinnati and the East.

This ultra-modern, all-coach
streamliner features, among others,
radio reception that can be chan-
neled to each car or confined to the
lounge cars, an inter-communication
telephone system between the
conductor and engineer, and . . .

ADLAKE BREATHER WINDOWS!

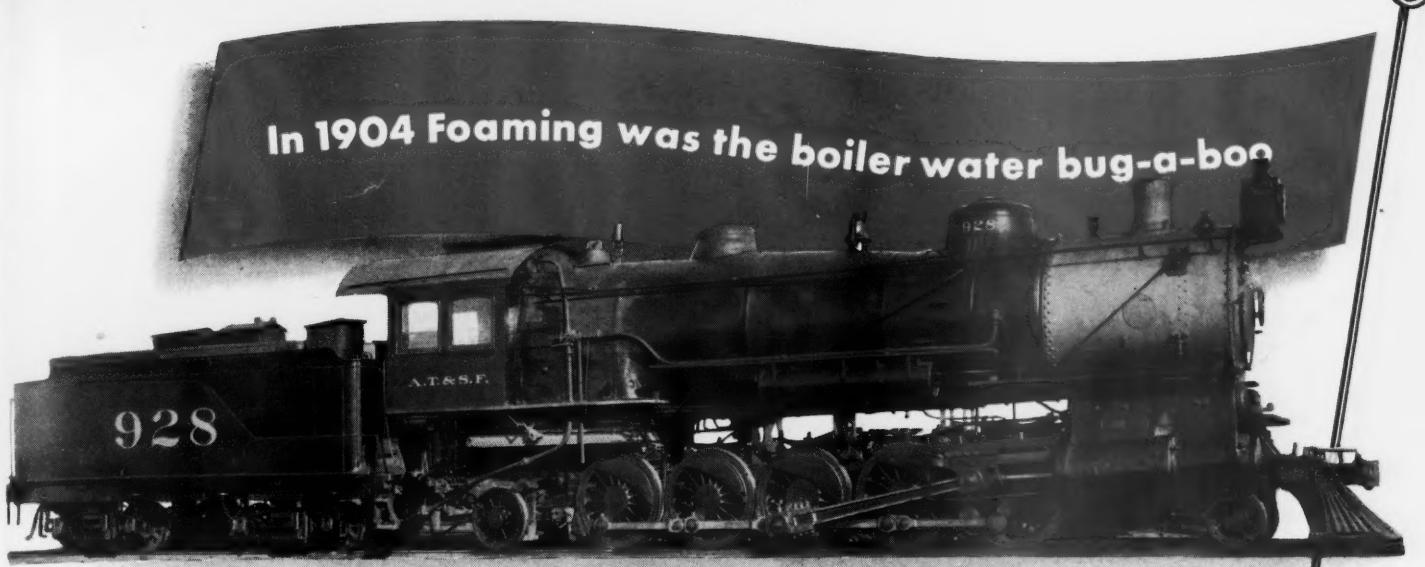
No small part of the beauty, effi-
ciency and comfort of the new *Cin-
cinnatian* is the Adlake Breather
Window. Passengers can enjoy a
clear, unclouded view of the land-
scape because the Adlake Window
will not cloud, steam or frost! The
patented "breather" keeps the air
adjusted to all temperature changes,
keeps dust, dirt and cinders *out!*

What's more, it banishes the need
for troublesome dehydrants and
drying compounds—and if panes
are accidentally broken in service,
only the broken glass needs replace-
ment—not the entire unit!

ADLAKE LUGGAGE RACKS are
an integral part of the Cincinnati's
lighting system and decorative
scheme. Available with fluorescent
or lens-type lighting, Adlake lug-
gage racks provide every seat with
modern, glare-free light.

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Established 1857 • ELKHART, INDIANA • New York • Chicago
Manufacturers of Adlake Specialties and Equipment
for Railway, Airway, Highway, Waterway



The 1904 locomotive pictured above was troubled with foam and carry-over. Every roundhouse could point out locomotives held for boiler washout.

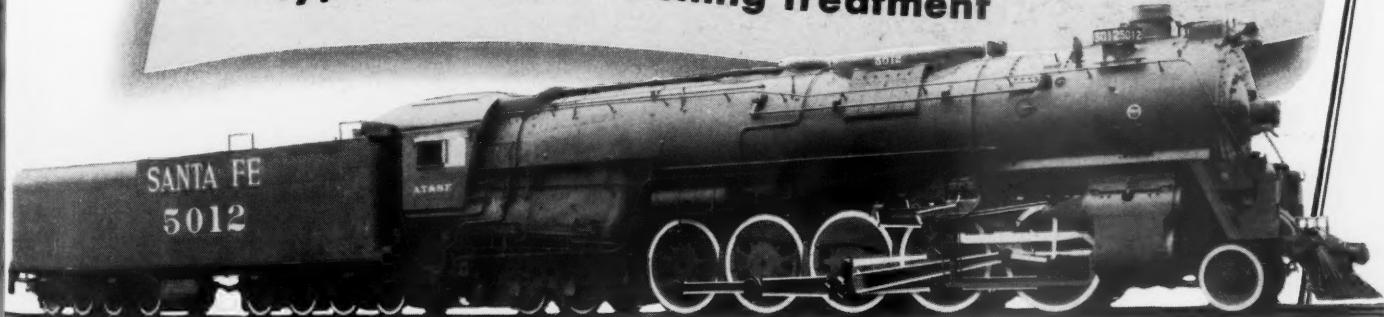
This became a challenge. In 1904, Dearborn provided the first relief . . . a scientific formula Number 209 to act as an antifoam and finishing treatment.

In the 1947 steam locomotives carry-over would still present a serious operation problem if it were not for the perfected scientific treatment and service

made available by Dearborn with the new Amine type Antifoam. Today, locomotives take full throttle through many water districts and are available for round-the-clock service, day after day.

In 1904 Dearborn surprised railroad operating men with its ANTIFOAM TREATMENT.

In 1947 Dearborn treatment includes the new AMINE type Antifoam finishing treatment



(Photos: Courtesy of A. T. & S. F. Railway Company.)

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TRADE MARK REGISTERED
EXPLORING NEW HORIZONS IN '47
Dearborn

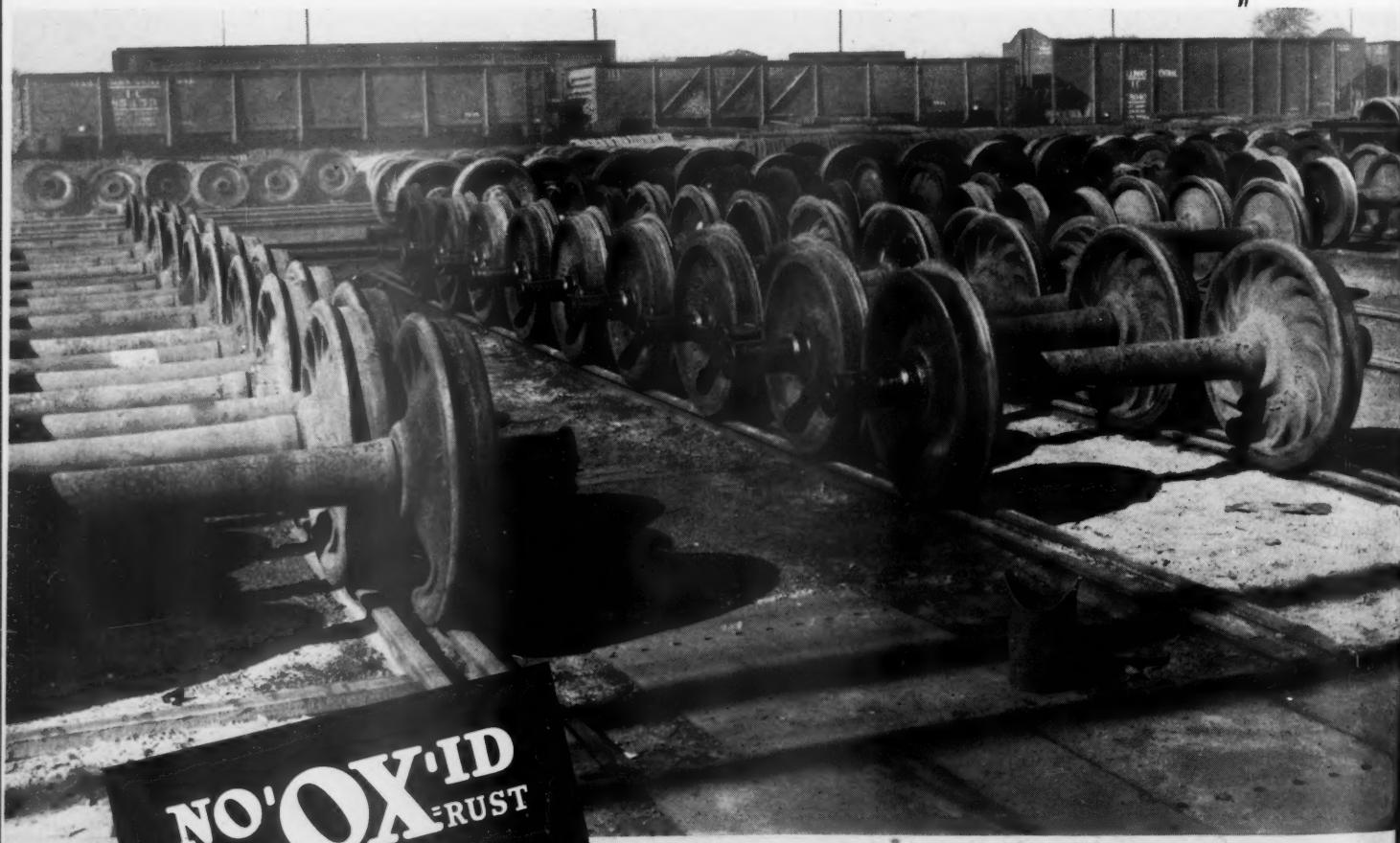
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ENGINEERING SERVICE AND WATER TREATMENT

Dearborn Chemical Company

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RUST PREVENTION for car journals in outside storage

Protected with NO-OX-ID (consistency "A Special"), stored car journals are safe from corrosion. NO-OX-ID mechanically protects highly polished surfaces from all elements which excite corrosion. Chemical inhibitors remain active under the wide range of atmospheric temperatures encountered, to prevent underfilm corrosion. Over the years, specially developed NO-OX-ID consistencies have provided lasting protection for railroad equipment. That's why Mechanical Department men say, "Protect it with NO-OX-ID and be sure." Write for bulletin, "Instructions for Application of NO-OX-ID Rust Preventive for Protection of Stored Car Journals."



NO-OX-ID
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AUG. 27, 1918

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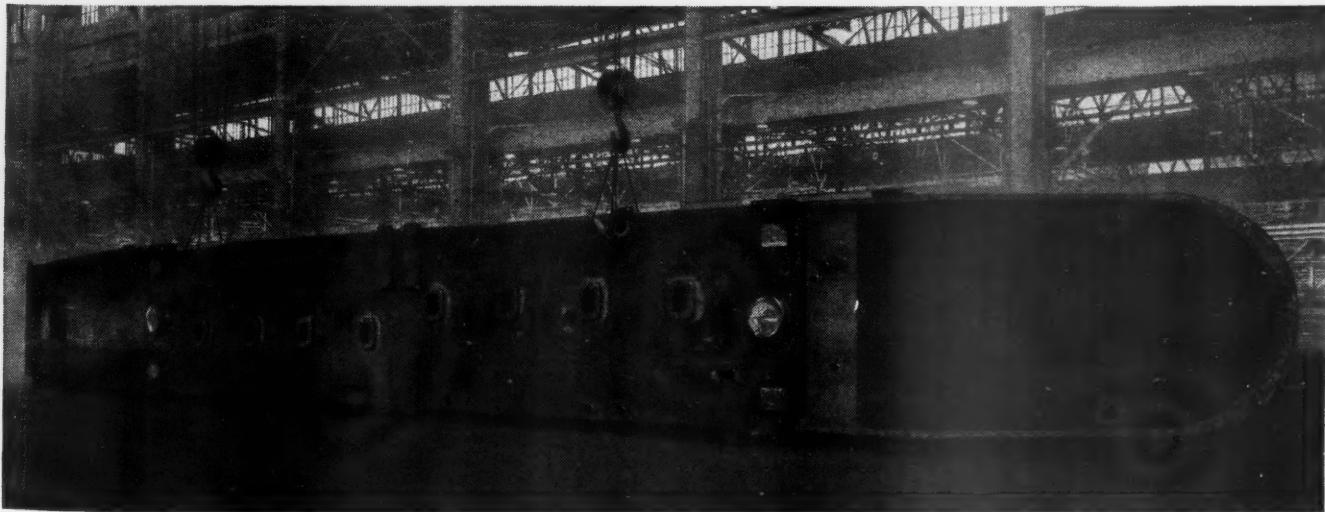
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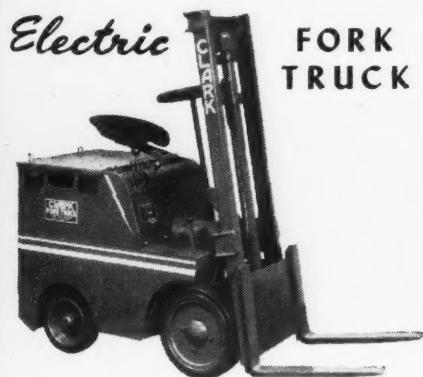
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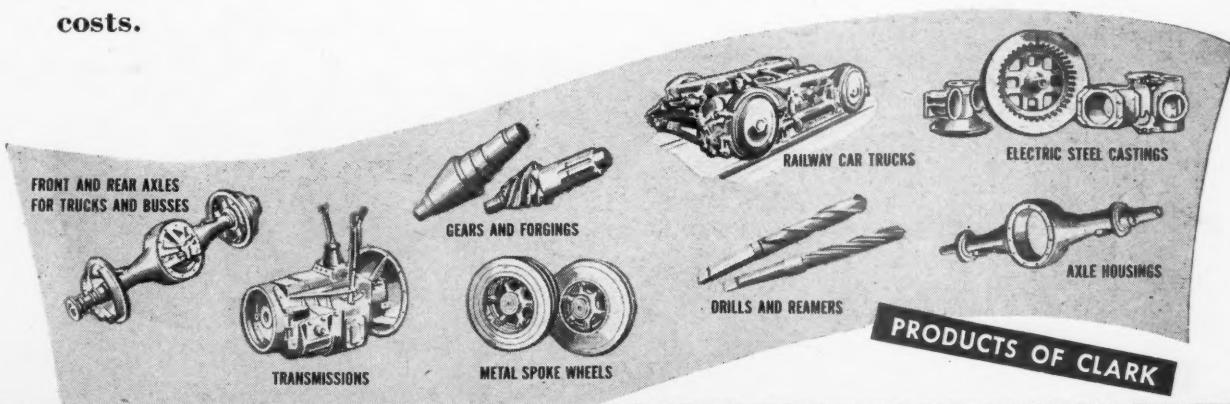


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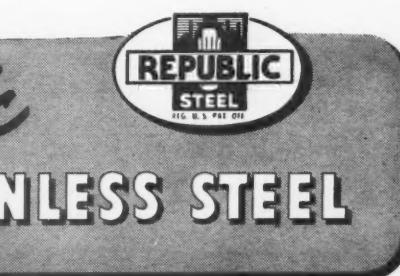
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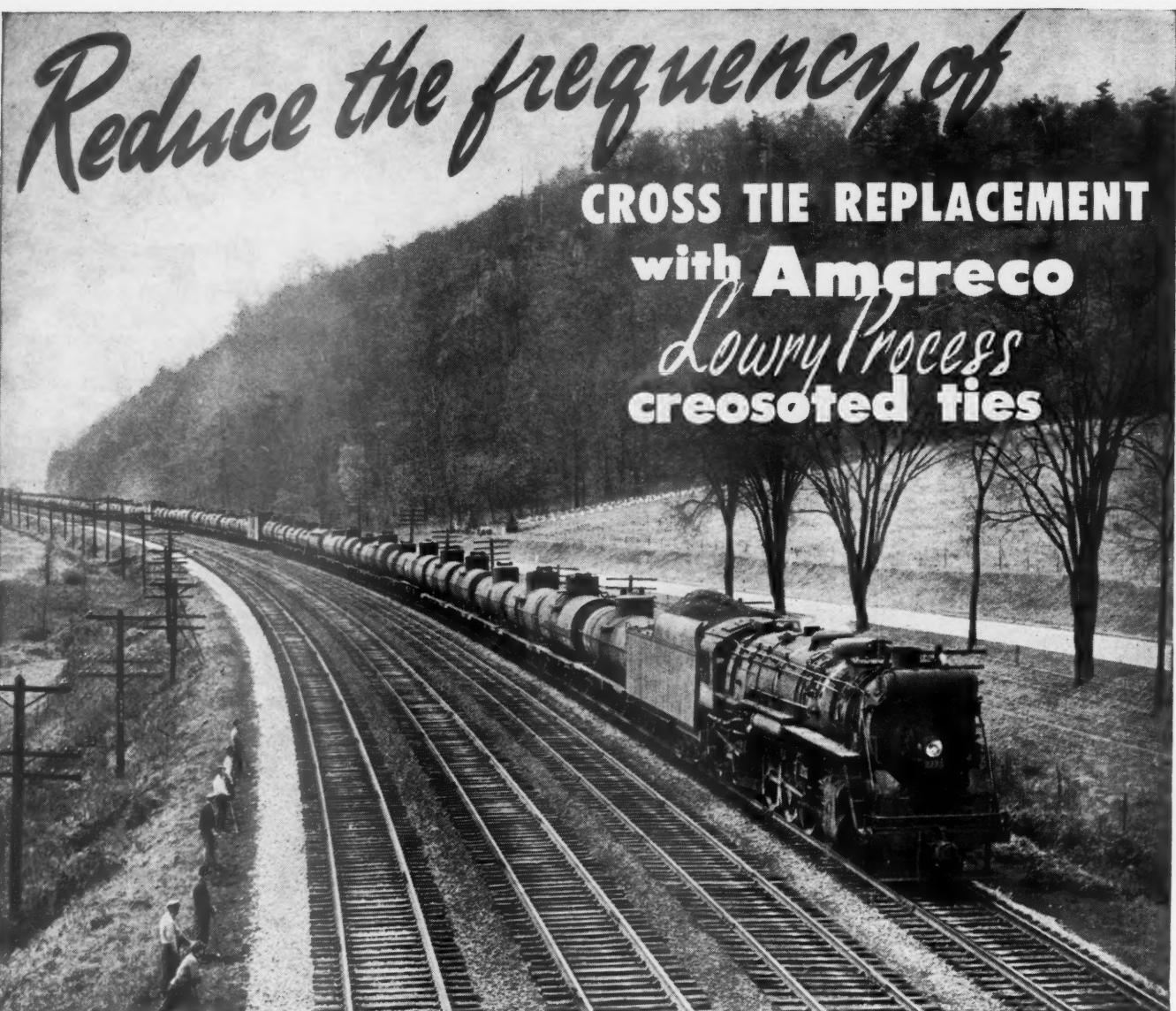
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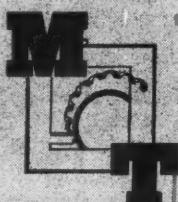


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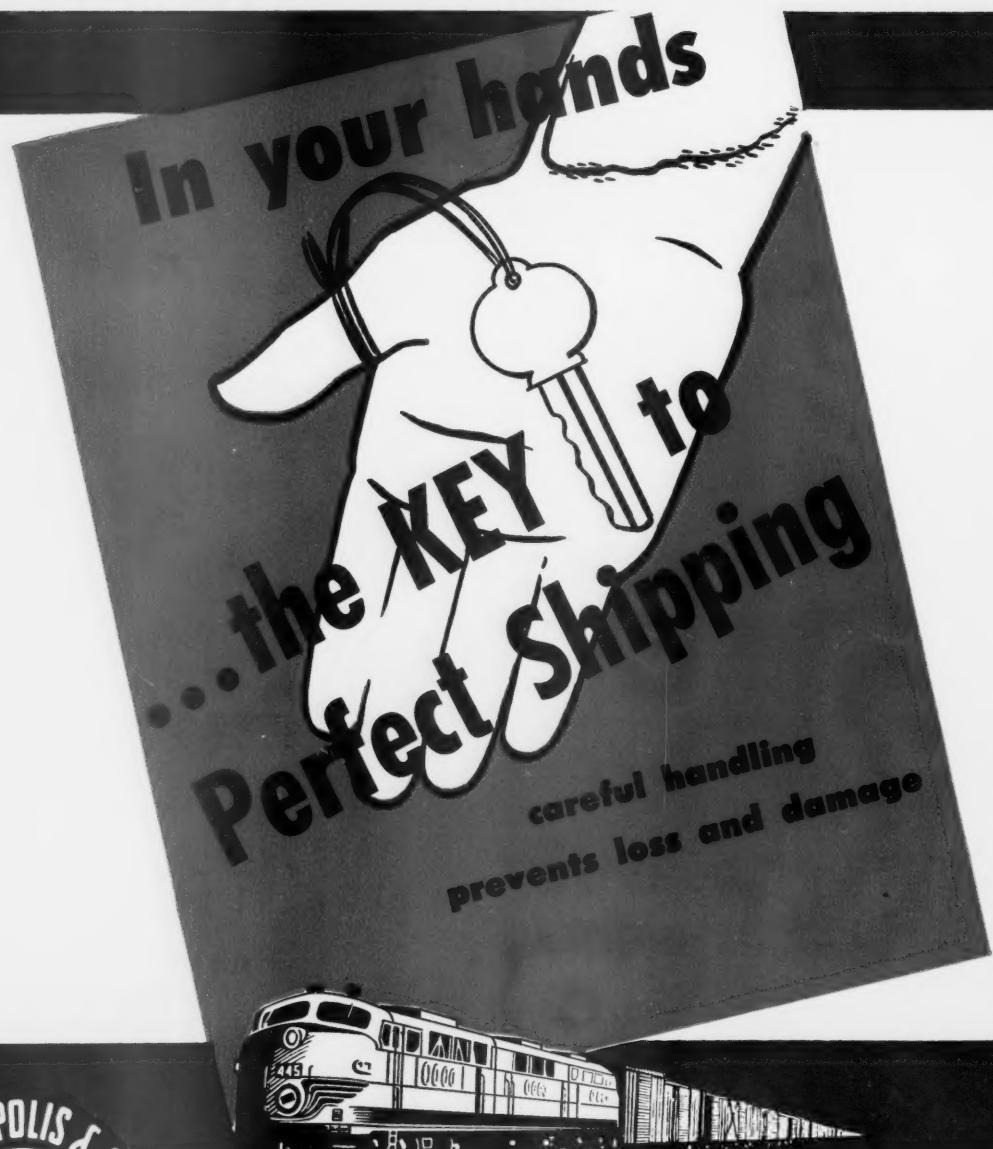
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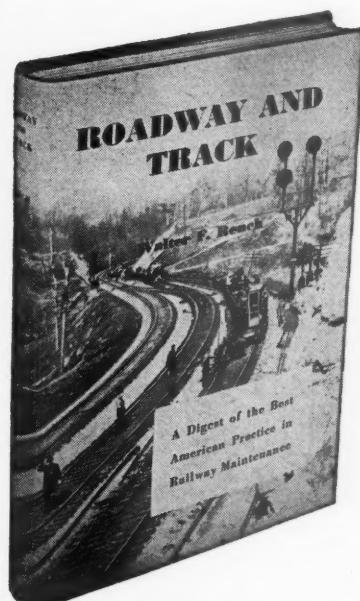
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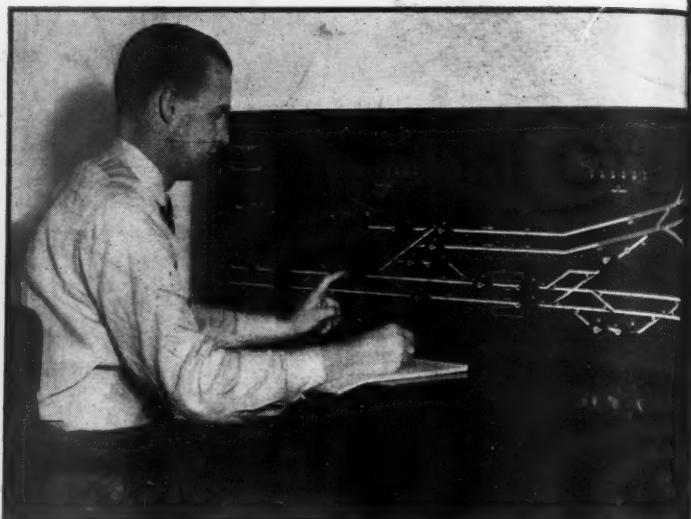
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There are two accepted ways you can do this.



1. You can line up a route by manipulating a lever for every switch and signal whose position must be changed before a train can use the route. Where routes are complicated and must always be broken down in terms of switches and signals, this mode of operation is time-consuming and inefficient.

2. You can also line up a route by manipulating an entrance knob and an exit button in a track diagram on a control panel. The entrance knob informs the NX system where your train is to enter the route. The exit button tells where it is to leave the route. The NX system automatically lines up the route for you.

THE RESULT WITH NX:

- Time saved because you don't stop to analyze any route.
- Where two or more routes exist from an entrance to an exit point, NX automatically selects an alternate route if a portion of the preferred one is being used. Time saved again.
- Operators are relieved of lever manipulating details. They have more time, therefore, for their other duties. Human efficiency is improved.

Let us make a study of your interlocking operations. Expert G-R-S engineers are at your service through the district office nearest to you. Call them without obligation.



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